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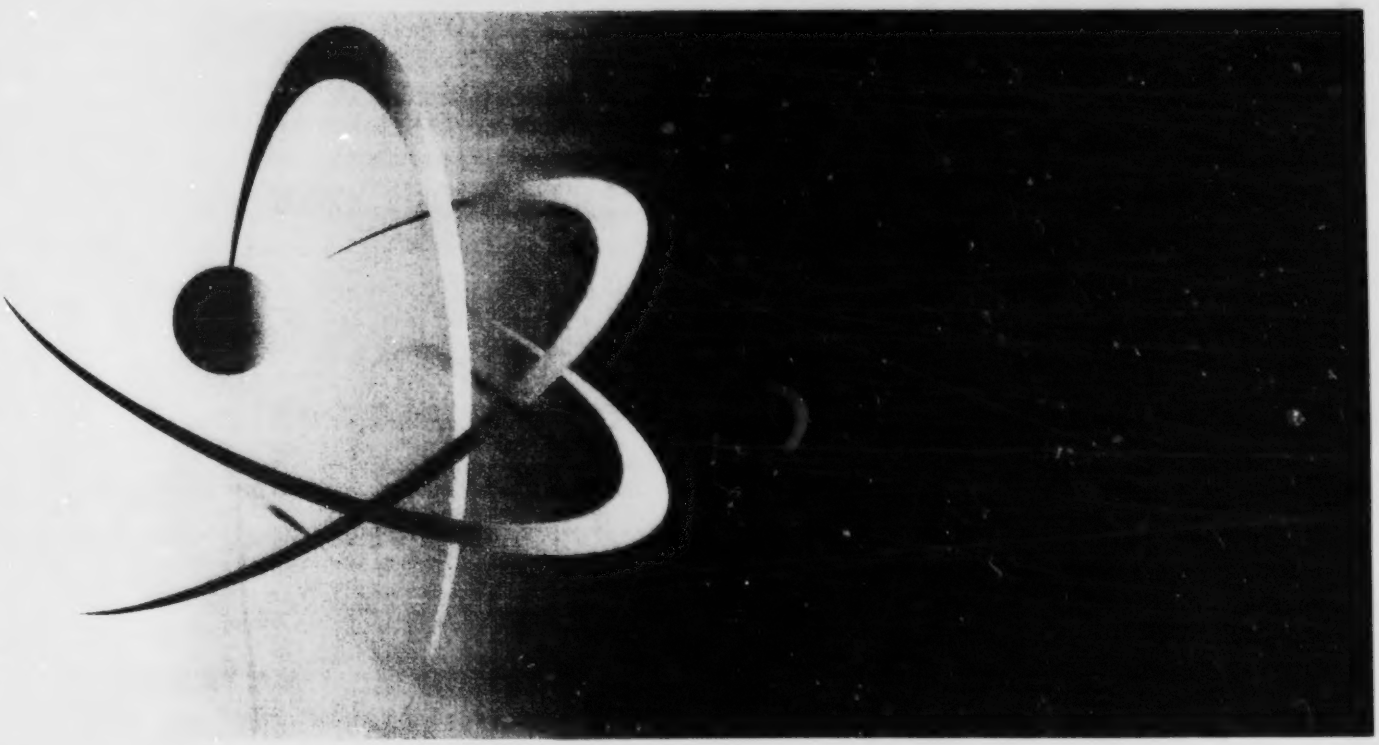
Cancer Incidence in Port Hope
1971 - 1996

By Environmental Risk Assessment and Case Surveillance Division Cancer Bureau, Laboratory Centre for Disease Control, Health Canada



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CANCER INCIDENCE IN PORT HOPE, 1971-1996

A report prepared by Environmental Risk Assessment and Case Surveillance Division
Cancer Bureau, Laboratory Centre for Disease Control, Health Canada on behalf of the Canadian Nuclear Safety Commission

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ABSTRACT

Public concern had been raised over increased environmental exposure to radioactive and other materials in Port Hope that were byproducts of radium and uranium processing activities since the 1930s. In response to this concern, an ecological study of cancer incidence in Port Hope was conducted. The results showed that compared to cancer incidence in the general population of Ontario, there was no overall evidence for an increased elevation of cancer in Port Hope. For the period 1986 to 1996, there were 589 cancers observed which was exactly the number expected (589) based on population rates. Comparisons with four municipalities in the same region within Ontario also indicated no unusual patterns that would suggest the influence of significant radiation or other exposures within the Port Hope community. Significant exposures to external radiation would, a priori, have been anticipated to increase the risk of leukemia and perhaps thyroid and breast cancer, but these cancer rates were not elevated. Further, there was no evidence that childhood leukemia in particular, a cancer very sensitive to radiation exposure was increased above expectation. Increased exposure to radon progeny at indoor levels is believed to be an important risk factor for lung cancer and slight elevations were noted for women, but not men. The radon levels reported in Port Hope, however, do not seem sufficiently high to result in a detectable increase in lung cancer and a previous analytic epidemiologic study conducted in this area was not able to link convincingly radon to lung cancer, although cigarette smoking was confirmed as a potent carcinogen.

While there were some increases and some decreases in cancer occurrence when data were subdivided into finer units by gender and calendar time, the observed patterns were similar to those of other communities in Ontario. These findings are, on the whole, reassuring that the patterns of cancer incidence are comparable to the Province of Ontario and of other similar communities. The limitations of ecologic surveys must be kept in mind, however, as they can only paint with a broad brush the possibility that environmental exposures have affected disease occurrence in a community: exposure to individuals is not known, assigning cumulative radon or radiation exposures even to groups is based on few measurements and many assumptions about residential occupancy and constancy of exposure over decades, population mobility impacts on assignment of environmental exposures, and errors are known to occur in assigning place of residence. Nonetheless, as there was industrial activity in Port Hope that has increased environmental levels to known carcinogens, albeit at low levels, it would be useful to periodically monitor cancer incidence in the Port Hope community to learn whether any changes

might occur. Conducting more analytic studies, such as case-control investigations of certain cancer types of cancer, would not seem a useful exercise based on the data presented in this survey. However, periodically evaluating the cancer statistics that are routinely collected, similar to what was done in the current study or with enhanced residence information, would be prudent.

RÉSUMÉ

La population de Port Hope s'inquiète des effets d'une plus grande exposition ambiante aux matières radioactives et à d'autres matières, sous-produits du radium et de l'uranium traités dans la ville depuis les années 30. Pour donner suite à ces craintes, on a entrepris une étude écologique sur l'incidence du cancer dans la municipalité. Les résultats révèlent que, dans l'ensemble, l'incidence du cancer à Port Hope n'est pas plus élevée que dans le reste de la population de l'Ontario. Ainsi, de 1986 à 1996, les 589 cas de cancer observés correspondent exactement au nombre de cas prévu (589) d'après les taux dans l'ensemble de la population. La comparaison avec quatre autres collectivités ontariennes se trouvant dans la même région n'a pas non plus révélé de tendances anormales qui pourraient laisser croire à une exposition importante aux rayonnements ou à d'autres facteurs de risque à Port Hope. A priori, une exposition externe importante à des rayonnements devrait accroître les risques de leucémie et peut-être même de cancer de la thyroïde et du sein, mais les taux observés à Port Hope n'étaient pas élevés. D'autre part, le taux de leucémie chez les enfants surtout, un cancer particulièrement radiosensible, ne dépassait pas les prévisions. On considère qu'une plus forte exposition aux produits de filiation du radon à l'intérieur constitue un important facteur de risque de cancer du poumon, et l'on a constaté une faible augmentation de ce cancer chez les femmes, mais non chez les hommes. La concentration de radon relevée à Port Hope n'est toutefois pas assez importante pour donner lieu à une hausse détectable du nombre de cancers du poumon. Une analyse des données épidémiologiques effectuée antérieurement à Port Hope n'a pas permis d'établir un lien concluant entre le radon et le cancer du poumon, quoiqu'elle ait confirmé la forte cancérogénicité du tabac.

La subdivision des données en sous-ensembles plus précis selon le sexe et dans le temps a bien révélé tantôt une hausse tantôt une diminution de l'incidence du cancer. Cependant, les tendances étaient similaires à celles observées ailleurs en Ontario. La constatation que les tendances relatives au cancer à Port Hope se comparent à celles de la province et d'autres collectivités senblables est généralement rassurante. Néanmoins, il ne faut pas oublier les limites des études écologiques. En effet, ces dernières ne brossent qu'un tableau très grossier des conséquences qu'une exposition aux contaminants environnementaux peut avoir sur la situation épidémiologique d'une région; elles ne disent rien sur le degré d'exposition des individus; les estimations de l'exposition cumulative au radon ou à d'autres sources de rayonnements, même dans le cas d'un groupe, ne reposent que sur quelques mesures et sur une multitude d'hypothèses concernant l'occupation des lieux et la stabilité de l'exposition dans le temps; la mobilité de la population nuit aux estimations de l'exposition ambiante; enfin, on sait que l'attribution d'un lieu de résidence est entachée d'erreurs. Quoi qu'il en soit, puisque des activités industrielles ont accru, ne serait-ce que faiblement, la concentration de cancérigènes connus dans l'environnement

à Port Hope, il demeure utile de vérifier périodiquement l'incidence du cancer dans la population de la municipalité pour savoir si des changements peuvent survenir. Des études plus analytiques, telle une étude cas-témoins pour certaines formes de cancer, s'avéreraient inutiles, compte tenu des données présentées ici. Toutefois, il serait prudent d'effectuer une évaluation périodique des statistiques sur le cancer habituellement recueillies, comme dans le cas de la présente étude ou sur la foi d'information plus précise sur le lieu de résidence.

DISCLAIMER

The opinions expressed in this document are those of the authors and do not necessarily reflect those of the Canadian Nuclear Safety Commission.

TABLE OF CONTENTS

1. **Introduction** 1

2. **Methods** 3

3. **Results** 6
   - 3a. Port Hope: 1986-1996, Postal Code used for Residence 6
   - 3b. Other Communities: 1986-1996, Postal Code used for Residence 7
   - 3c. Port Hope: 1971-1985, 1986-1996, 1971-1996, MOH Code used for Residence 8
   - 3d. Childhood Cancer 9
   - 3e. Enumeration Areas of Port Hope, 1986-1996 9

4. **Discussion** 10
   - Municipal patterns 10
   - Sub-municipal analyses 12
   - Confounding risk factors 14
   - Impact of the source of residence code on cancer rates 15
   - Concluding comments 17

Acknowledgements 19

List of Acronyms 19

Tables 20

Figure 20

References 22

Appendix A Tables

Appendix B - Cancer Site Definitions

Appendix C - Sample Size

1. Introduction

A plant processing radium and uranium ores has been operating in the Town of Port Hope since the 1930s. As a result of concerns about the disposal of low-level radioactive waste in the area and the use of contaminated fill at various construction sites, remedial action was initiated in the 1970s for homes with radon levels above 0.02 WL (about 150 to 185 Bq/m^3). Additionally, operations of a foundry manufacturing ceramics had caused heavy metal soil contamination in several areas of the community. Surveys have been conducted in the town to delineate and evaluate areas of contamination (RWRD 1994, SENES 1995, LLRWMO 1995, Ladouceur 1996). Lees (1987) conducted a case control study of lung cancer with twenty-seven eligible cases identified over a ten-year study period, based on residential radon exposure estimates from the first survey used to assess the need for remedial action. While there were no conclusive results linking domestic radiation with lung cancer, a marginally significant association with estimated corrected dosages and a strong association with smoking status was reported. This study had a limited estimated power of 0.28 to detect a relative risk as large as 2.0 because of the small number of cases (Lubin 1990).

In 1994 Health Canada undertook a dose reconstruction project to assess the cumulative radiation exposure to town residents covering indoor and outdoor exposure to gamma radiation and radon gas, inhalation of airborne uranium, and ingestion of uranium and radium from contaminated soils (SENES 1995). The major contributor to radiation exposure was indoor radon. Based on the cumulative estimated exposures observed and existing knowledge of dose-response relationships of radiation risk, an observable excess of cancer would not be expected because the cumulative doses were low (Tracy 1995, ICRP-60, Boice 1996).

Concern has also been expressed regarding historic airborne deposition of metals such as arsenic, uranium, and lead. The Ontario Ministry of the Environment (OME) assessed potential adverse health effects of various metals emitted from this plant and other earlier industrial activities in the town including arsenic, chromium, cadmium, and nickel (OME 1991) and reported that levels observed in Port Hope at the time of the report were not of sufficient magnitude to expect increases in cancer. These metals or their compounds are considered human carcinogens by the International Agency for Research on Cancer (IARC). Inhalation in occupational settings has been the principal route of exposure and excess lung and nasal cancers have been reported (IARC 1987). An evaluation of soil from the play areas of 12 Port Hope schools resulted in one area being fenced off because of elevated lead and antimony levels (OMEE 1997, OME 1997).

Two reports of cancer mortality rates indicated that rates in Port Hope were comparable to other areas of the province and the country. In a report of mortality in selected urban areas in Ontario for the period 1954 to 1978, mortality from 33 causes of death was not significantly different from provincial averages (Ecosystems 1984, Kusiak 1984). The Mortality Atlas of Canada Volume 3, which covered the period 1973-1979, reported that cancer mortality rates for Port Hope including Hope Township were not significantly different from Canadian rates (HWC 1984).

The current report, requested by the Canadian Nuclear Safety Commission, compares cancer incidence rates for the Town of Port Hope during 1971 to 1996 with those of the province of Ontario. A second objective was to describe cancer incidence by residence for areas within the municipality, since some areas of the town were reported to have had higher radiation exposure before the remedial work than others and some areas were reported to have higher soil levels of metals and radionuclides (SENES 1995).

In conjunction with the toxicological and radiological assessments carried out to date, the current cancer incidence report in addition to a mortality statistics review which has also been initiated (1950-1997), will thus represent a systematic means for evaluation of the health status of the community. This process for addressing public health concerns related to environmental contamination, which involves the toxicological evaluations to predict risk to the community and now reviews of health statistics to identify any unusual disease patterns, follows the recommended approach of the US Agency for Toxic Substances and Disease Registry.

This cancer incidence report is a descriptive, ecological study. Because this type of study has additional limitations, the reader is cautioned in making inferences. Ecological studies are generally used to develop hypotheses and their feasibility, and have as the unit of analysis the population or groups of people, rather than individuals. However, an association observed between variables on an aggregate level does not necessarily mean that the same association will exist at the individual level.

Among major limitations of ecological studies is the fact that they do not have information on other disease risk factors, and the problem becomes more severe with increasing strength of the risk factor. For instance, ecological study of diseases associated with smoking have a substantial potential for bias (Morganstern 1995, NRC 1999) .

Additional limitations of ecological studies specifically examining correlations between disease rates and exposure categories assigned to areas of town include the fact that uniform exposures are assigned to groups of people, whereas the exposures received by individuals vary and at the individual level are highly uncertain. Mobility is an important factor in this uncertainty. While all people living in an area at a given time are treated the same, with a person living one year in a residence counted the same way as persons living there 50 years, obvious differences in cumulative exposures would exist. In the case of this study, for which exposure levels are primarily based on estimation of residential radon levels, the exposure categorization is further uncertain as the study primarily relies on one short term measurement (technically called a grab sample) to reflect cumulative radon levels over a period of 10 to 30 years. That it can do so only crudely is evident, as in addition to the previous factors, exposure estimation for residential radon estimation is also problematic as seasonal factors and modifications to homes influence levels, and occupancy factors vary by age, gender, and occupational status.

2. Methods

Cancer incidence data routinely collected by the Ontario Cancer Registry (OCR) covering the period 1971 to 1996 were obtained and summarized for the Town of Port Hope and for the municipalities of Cobourg, Belleville, Lindsay, and Orillia. These four additional regions were added to compare the patterns of cancer incidence in other regional communities with those of Port Hope, when each community is compared with provincial rates.

In preparing health statistics at a sub-county level, the importance of correct residence coding is obvious. Mao (1984) noted a tendency for cases and deaths to be attributed to urban centres if the true residence location is adjacent. For this reason, results are presented by larger groups of municipalities functioning as economic units (census agglomerations or CAs) as defined by Statistics Canada for communities of 10,000 population or greater. The Town of Port Hope alone, i.e. the Port Hope CA, is examined in the present report; incidence statistics for Hope Township, not part of the Port Hope CA, would normally be included with the town in generated health statistics in order to reduce the impact of coding difficulties. Residence coding errors are reduced since it is not necessary to distinguish among component municipalities forming the CA, especially between suburban and rural areas surrounding an urban core.

The Standard Geographic Code (SGC) is used to indicate geographic location at the municipal level. This was available on the population files, and when converted from residence data for the OCR files. Two geographic identifiers were available on the OCR data with a high level of completeness: postal code (1986-1996) and the Ontario Ministry of Health (MOH) municipal residence code (1971-1996). An automated conversion program was used to convert postal codes to SGC code (Wilkins 1998) and the conversion of MOH code to SGC code was straightforward as there is generally a one to one correspondence between these codes. The 7.5% of cases with no postal code for 1986-1996 used the MOH code for all analyses. Appendix Table A1 provides the 1996 census populations at the census agglomeration (CA), town, and township level with the SGC and 1995 MOH codes.

For the period for 1971-1985 and the combined period 1971-1996, the MOH code was used to obtain cancer rates. However, as it is known that each source of residence data has certain shortcomings (described later in the report) , cancer rates for the municipality according to both sources of location are presented in this report for the period 1986-1996. The 1986-1996 postal code data was also used to describe cancer rates at a sub-municipal level, allowing for investigation of patterns in select areas of town.

Cases coded to the International Classification of Disease (ICD) 9th edition range 140-208, except for other skin cancer (ICD-9 173), were included. Borderline malignant ovarian cancer cases occurring before 1992 were excluded as these histologies were first considered malignant with the second edition of the International Classification of Diseases for Oncology formally implemented in all Canadian cancer registries in 1992. Excluding these cases is a standard procedure, since the OCR had implemented a field trial edition earlier than the full

implementation. Cancer sites were grouped for all cancers combined (excluding other skin cancer) and for sites coded at the 3-digit ICD 9th edition level. For some sites, groupings at the 3-digit level as defined in the Canadian Cancer Incidence Atlas (Le 1995) were used; for example, colon and rectum cancer were tabulated together because there may be considerable diagnostic misclassification between the two sites. The list of ICD-9 groupings corresponding to the sites used in the tables is given in Appendix B.

Population data used at the municipal level and for Ontario, obtained for the 1971 through 1996 censuses from the Demography Division of Statistics Canada, were not adjusted for the estimated census undercount since this adjustment is not available on data at the municipal level or lower. Populations for intercensal years were estimated by linear interpolation within gender and age groups.

Age-standardized incidence rates (ASIRs) and standardized incidence ratios (SIRs) with confidence intervals (CIs) were calculated; the SIR is defined as the number of cases observed divided by the number expected based on gender and age-specific provincial rates for the corresponding period (Breslow 1987a, Ury 1987, Ferlay 1997). Where there are less than 10 cases, the SIR should receive priority for evaluation, since the ASIR is impacted by fluctuations in the age-specific number of cases rather than the total cases, resulting in less stable estimates. A statistical examination of the interaction by age group of the ratio of the Port Hope rates to the Ontario reference rates was also conducted for 1986-1996 using the Mantel-Haenszel (MH) rate ratio and tests for heterogeneity and trend (Ferlay 1997). The MH rate ratio is an alternate measure to the SIR with good statistical properties, but is more sensitive to age groups with small number of cases (Breslow 1987a).

The present report examined rates of cancer by age group (all ages combined, children <20 years, 20-74, and 75 plus), gender (male, female and both combined) and period (1971-1985, 1986-1996, 1971-1996 stratified by period), and area of town (entire town, town areas grouped according to categories of estimated exposures). Summary overview of information on cancer rates of all cancers combined, plus any specific cancer type significantly different from provincial rates in any of the 45 major categories of cancer investigated, regardless of gender, period, residence code, area of town or any combination thereof is presented for all ages combined in Tables. Childhood (<20 years of age) cancer rates for all cancers combined, leukemia, non-Hodgkin's lymphoma and brain/nervous system cancers, by period and combined gender, are also presented. Cancer rates among the age groups 20-74 and 75 or more were not summarized in tables or presented in appendices, however, any notable rates according to age group are discussed in the text.

Because of confidentiality concerns, the OCR does not permit release of rates or counts based on less than three cases; however the present report restricts reporting for less than five cases, a standard Canadian Cancer Registry requirement. Since results were also presented for males and females separately and combined, separately by period (1971-1985, 1986-1996) and for the combined period (1971-1996), some of the combined values also had to be suppressed in order to

preserve confidentiality of components with counts less than 5. The tabled summary data or full data in the appendices was not presented for the age groups of 20-74 or 75 and older, as additional suppression of data would have been required and no further significant results for Port Hope would be included.

To put any Port Hope findings in context, the report also examined cancer rates in several other regional communities for the period 1986-1996, comparing these as well to provincial cancer rates. Cobourg, Lindsay, Belleville and Orillia were selected to provide an overview of variations in cancer patterns. Education and income data from the 1991 census of the communities was examined for comparative purposes (Statistics Canada 1993a, 1993b), however, the impact of socioeconomic levels on cancer incidence was not assessed. The levels of education (percent of resident with less than grade 9) and percentage of low income families in Port Hope were slightly closer to comparison communities than to Ontario as a whole, except for education levels in Orillia (Appendix Tables A2 and A3). For these variables, the Port Hope levels were below the 25th percentile point of the CA distribution.

It is possible to adjust the observed SIR in a study area based on an estimate of the smoking prevalence (Gail 1988, Dean 1988). However, the present study was not able to apply this method since smoking prevalence estimates were available only at the larger Health Unit level from the 1990 Ontario Health Survey (OHS).

In addition to describing cancer rates at the community level, the rates were also examined within areas of Port Hope, these areas being defined on the basis of available estimates of exposure. One categorization of exposures by area of town was done by grouping Enumeration Areas (EAs) within the Town by radiation exposure levels based on estimates calculated for town blocks by SENES (1995). The report assigned estimates of annual average dose rates per year by block for four time periods (1955-1966, 1967-1976, 1977-1986, and 1987-1993). Total estimated doses for the 1967-1976 period (preremediation period) , and estimated doses averaged over the four periods (both weighted by block populations) were used in this report to classify the EAs into three exposure groups by estimated total radiation dose. Trends in SIRs by exposure group used the Armitage trend test (Breslow 1987a).

Of the 18 EAs in the town for 1996, one was assigned to the hospital and had no permanent residents and three other EAs comprising less than a block were assigned the dose value for the whole block. The EAs (Figure 1) were classified on total radiation dose into 3 groups of approximately equal intervals based on their natural grouping. Grouping areas of Town according to the 1967-1976 pre-remediation period radiation exposure estimates resulted in ranges of exposure levels of 0.9-1.1 mSv/y, 1.1-1.3 mSv/y, and 1.3-1.5 mSv/y across areas 1 to 3. As no cumulative or individual exposure levels were available, it was recognized that these levels of exposures could be but crude proxy attempts at assigning radiation exposures to populations within areas. Further, given that background levels are typically of 2-3 mSv/y, the radiation exposure levels used are such that no health effects would be expected in any exposure range, since all are within background levels. Nevertheless, even this crude categorization was

viewed as potentially being useful to provide a proxy means to assign a gradient to exposures in general across the town, and if large differences in risks by region existed, these would be discernable using this approach.

The unweighted ranking and results based on the average of the four time periods were similar to those for the 1967-76 period. EA 307 moved from group 3 to group 2. EA 308 corresponds to 1 or 2 of the larger seniors' residences in the town and there is some inconsistency on how this residence was handled for the 1996 census and by the postal code conversion program. Consequently, more reliable results were expected when EAs 307 and 308 were combined in the same exposure group as is the case for the 1967-1976 classification. Since the largest contribution to the total estimated dose rates was indoor radon (SENES 1995), the EAs with the higher 1967-1976 total estimated dose levels correspond to the areas with the highest average basement radon concentration by block (Figure 3.2, SENES 1995).

The second approach to EA categorization was based on predicted air and soil concentration values. Figures 3.4 and 3.5 of SENES (1995) reported that the two most southerly EAs had higher levels of uranium in the air and soil based on estimated values for 1988-1989. This area was also the area of the community with the highest levels of metal contamination in the soil (LRWMO 1995). Rates in this area were therefore also examined separately.

Cancer cases were assigned to their respective EAs based on the postal code using the same program as for the municipal level SGC coding (Wilkins 1998). EA populations by age and gender from the 1991 and 1996 censuses were obtained from Statistics Canada. While EA populations were also available for 1986, they were not used since a number of EA boundaries changed between 1986 and 1991. Additional uncertainty in the EA populations resulted from random rounding (up or down to the nearest 5 persons) of relatively small age-specific numbers. Thus, the total number of expected cases for the Town of Port Hope for the period 1986-1996 was allocated to the EA groupings based on the percentage of expected cases for 1996. Comparison with results using expected cases for the 1991-1996 period confirmed there was no appreciable difference if this longer period was used to determine the number of expected cases.

3. Results

3a. Port Hope: 1986-1996, Postal Code used for Residence

ASIRs and SIRs were determined using the two methods for assigning the residence. Table 1 provides ASIRs and SIRs with 95% confidence intervals for 1986-1996 for cancer sites which presented statistically significant differences from provincial rates based on the postal code method of assigning case residence to the community. Limitations of residential coding of the two methods available to assign residence (MOH code and postal code) are described later in the report. Results presented here start with those based on postal code, since this information is

considered best for distinguishing between cases residing inside and outside of Town boundaries. Appendix Tables A4A and A4B presents results for all the cancer sites used in the report for the period 1986-1996, on the basis of residential assignment made by postal code data.

The 589 cases observed for men and women combined for this period was essentially the same to the number expected based on provincial reference rates. There were no cancer sites among men with elevated incidence. Among women the SIR of cancer of the colon and rectum was significantly elevated with 61 cases observed compared to 43 expected, and based on the ASIR lung cancer was significantly elevated at the 5% level, with 44 cases observed versus 33 expected. Rates of cancer of the pharynx were higher among women and rates of cancer of the ovary lower than expected. Among men and women combined, cancer of the colon and rectum was significantly elevated (SIR 1.23 95% CI 1.01 - 1.49) while liver cancer was significantly decreased. The SIR for lung cancer among women was higher in the 20-74 age group (38 cases, SIR 1.67 95% CI 1.18 - 2.30) than among ages 75 or more (6 cases, SIR 0.60 95% CI 0.22 - 1.30).

3b. Other Communities: 1986-1996, Postal Code used for Residence

To examine whether any distinct patterns exist in Port Hope cancer incidence, comparisons to other Ontario communities were made with the most recent period data, using postal code to assign residence. The incidence for all cancer sites (all ages combined) in the other communities for 1986-1996 is presented in Appendix Tables A5-A8.

The first such summary of this comparison of rates across communities is presented in Tables 2a-2c. By community, these Tables detail rates of all cancers combined, as well as rates of radiosensitive cancers (lung, breast, thyroid, and leukemia), specifically, those cancers which can be considered as "sentinel" cancers for radiogenic exposures. The Tables provide an opportunity to examine whether such "sentinel" cancers were systematically elevated in Port Hope, but not elsewhere.

Among men, rates of leukemia in Belleville were significantly elevated (SIR 1.42 95% CI 1.17 - 1.72) . Lung cancer was elevated among women in Port Hope as noted above and among women in Belleville (SIR 1.17 95% CI 1.09 - 1.25) while the cases of thyroid cancer in Belleville were significantly less than expected (27 observed versus 42 expected). When results for men and women were combined, lung cancer in Orillia was also borderline significant based on the ASIR.

Childhood cancers and leukemia ages 0-19 can also be considered as "sentinel", or radiation sensitive. Rates by community are presented in Table 2d. The 8 leukemia cases observed in Lindsay CA was greater than expected (SIR 2.91 95% CI 1.26 - 5.70). No excess childhood leukemia was evident in Port Hope.

The second summary of the comparison of community cancer patterns is presented in Table 2e. The Table summarizes significant variation in any of the cancers by community from the provincial rates . No striking patterns were observed in any of the communities. At the individual community level, some significant elevations or decreases in rates of select cancers were noted in each community. In Cobourg, no cancer sites were significantly elevated among men but among women, melanoma was significantly elevated. In Lindsay CA, cancer among men was also similar to provincial rates, but among women, cancer of the uterus excluding cervix was significantly elevated while stomach cancer was significantly lower than provincial rates. In Belleville CA, the rate for all cancers was similar to provincial rates for men but incidence of leukemia was increased as noted above, while prostate cancer and cancer of ill-defined and unknown sites were significantly low. Among women, all cancers combined were 5% above provincial rates among women based on SIR, but the ASIR was not significant. Cancer of the nasopharynx, small intestine and lung cancer were also significantly elevated. Significantly lower incidence among women was observed for cancer of the cervix, thyroid, other and ill-defined sites, and Hodgkin's Disease. In Orillia, lip and colorectal were significantly elevated among men and cervical among women.

3c. Port Hope: 1971-1985, 1986-1996, 1971-1996, MOH Code used for Residence

When cancer cases were assigned to the community on the basis of postal code residential data, there were 589 cases coded to Port Hope over the 1986-1996 period. In comparison, 622 cases were assigned to the community using the MOH code based on municipal name codes (5.6% more cases). Partly because of the additional cases based on the MOH code use of the two different sources of residence data lead to somewhat different results, particularly with respect to statistical significance of the comparisons. On the whole however, the results according to residence code were fairly consistent, showing similar magnitude and direction of SIRs.

For all cancers and cancer sites showing statistically significant increases for Port Hope in comparison to provincial rates for any period and method of assigning residence, summary results by gender and for both combined are presented in Tables 3a-3c. Appendix Tables A9-A11 present incidence of all cancer sites for Port Hope based on assigning residence using the MOH code for the periods 1971-1985, 1986-1996, and 1971-1996 respectively.

For the period 1971-1985, men experienced 10 cases of cancer of the esophagus (SIR 2.41, 95% CI 1.16 - 4.41) and 5 cases of cancer of the noses/sinus (SIR 5.61, 95% CI 1.81 - 12.88). No cancer sites with significantly elevated incidence were observed for women. For the period 1986-1996, men experienced 7 cases of cancer of the lip (SIR 2.75, 95% CI 1.10 - 5.60). Women experienced significantly elevated lung cancer incidence (47 cases, SIR 1.44, 95% CI 1.06 - 1.91) and brain/nervous system incidence (11 cases, SIR 2.21, 95% CI 1.11 - 3.94). Colorectal cancer among women was not significant at the 5% level based on the MOH code. As

was noted in the results based on postal code, the 5 ovarian cancer cases observed were significantly lower than the 11.6 expected (SIR 0.43, 95% CI 0.14 - 0.99). No additional cancer sites were significant based on the combined 1971-1996 period or when results for men and women were combined.

With two exceptions, there were no cancer sites with significant results in addition to those already presented for all ages combined when results for ages 20-74 and 75 or more were examined separately. For the period 1971-1985 (based on MOH code), among women ages 20-74 there were 11 cases of cancer diagnosed as ill-defined sites (SIR 2.12, 95% CI 1.06 - 3.77) and among women ages 75 or more 6 cases of kidney cancer were observed (SIR 4.05, 95% CI 1.49 - 8.71).

3d. Childhood Cancer

A summary of selected childhood cancer rates in Port Hope is presented in Table 4. Due to low numbers of cases expected, only all cancers combined and the most common childhood cancers are described among both genders combined. Table 4 details the rates of leukemia, non-Hodgkin's lymphoma and brain/CNS system cancers.

For the period 1986-1996, based on postal code based assignment of residence, a significant interaction of the rate ratio by age in Port Hope compared with Ontario was observed for non-Hodgkin's lymphoma. The ratio of the Port Hope rates to the provincial rates was higher for the age group 0-19. For this age group, the SIR was significantly elevated based on less than 5 cases observed for both males and females combined. There were no other sites of childhood cancer with a SIR greater than one. Overall childhood cancer incidence for the period 1986-1996 was not significantly different from provincial rates with 5 cases observed compared to 6.1 expected (SIR= 0.82, 95% CI 0.26 - 1.87).

All childhood cancer incidence ages 0-19 based on the MOH code for the periods 1971-1985, 1986-1996, and 1971-1996 was not significantly different from provincial rates with 19 cases observed over the full period compared to 13.5 expected (SIR= 1.41, 95% CI 0.85 - 2.19). However, for the 1971-1985 period brain/nervous system cancer was significantly elevated with 5 cases observed versus 1.2 expected (SIR 4.17, 95% CI 1.35 - 9.57).

3e. Enumeration Areas of Port Hope, 1986-1996

Tables 5a-5c present SIRs and 95% CIs for the three EA radiation exposure groupings based on dose estimates for the period 1967-1976 for all cancers and for any cancer sites showing statistically significant elevations from provincial rates, or any cancers demonstrating significantly increasing trends by exposure group. SIRs for the full list of cancer sites are presented in Appendix Tables A12-A14. Of the 589 cases with Port Hope residence (based on the postal code), 44 could not have the EA determined (7.5%) and were excluded from these tables.

In the lower EA estimated exposure grouping, Group 1, results for men and women separately were not significant, but lower than expected incidence occurred for all cancers combined and lung cancer when results for men and women were combined. A total of 15 lung cancer cases were observed versus 27.2 expected (SIR 0.55 95% CI 0.31 - 0.91). In EA group 3 significantly elevated cancer sites included 5 cases of lip cancer observed among men compared with 1.1 expected (SIR= 4.62, 95% CI 1.49 - 10.60), 32 cases of colorectal cancer among women versus 21.6 expected (SIR=1.48, 95% CI 1.01 - 2.09) and 28 cases of lung cancer among women versus 15.1 expected (SIR=1.86 95% CI 1.24 - 2.70). Trends over EA group were significant for lung cancer among women and men, and for all cancers combined and lung cancer among men and women combined.

Results for the classification based on the average of the 4 periods (1955-1966, 1967-1976, 1977-1986, 1987-1993) are not presented since they were similar to the preremediation grouping shown above. For lung cancer among women a lower number of excess cases was observed in the Group 3 EAs, but the relative risk was similar; in this higher exposure group 22 cases were observed versus 11.6 expected (SIR=1.90 95% CI 1.19 - 2.88). For this analysis EA 308 was placed in the middle exposure category with EA 307 since these EAs could not be analysed separately and EA 308 corresponds to a town seniors' residence. Radiation estimates for EA 308 are also not likely to be accurate since radon levels are expected to be lower in multi-unit buildings and residents of seniors' buildings may have moved from other EA groups.

For the second EA comparison, Table 6 presents SIRs and 95% CIs in the two southern EAs for all cancers and for any cancer sites showing statistically significant elevations from provincial rates. SIRs for the full list of cancer sites are presented in Appendix Tables A15. Overall cancer rates were close to those expected among both men and women. No excess of lung cancer among men was observed and the 9 cases among women resulted in a SIR which was slightly elevated but not significant. Among men in the southern EAs incidence of lip cancer was significantly elevated compared with provincial rates based on less than 5 cases, while incidence of colorectal cancer was significantly below provincial rates with again less than 5 cases observed. Among women, colorectal cancer was significantly elevated in the southern EAs with 17 cases observed compared to 9.1 expected and an SIR of 1.87 (95% CI 1.09 - 2.99). When results for men and women were combined the 8 cases of kidney cancer were elevated at the 0.05 level compared to 2.8 expected (SIR=2.87 95% CI 1.24 - 5.61). That some similarities of findings to those of Group 3 EAs as based on radiological dose estimates are apparent is not surprising, as these two EAs form part of the six Group 3 EAs.

4. Discussion

Municipal patterns

The rates in Port Hope for all cancers combined were within the expected values based on provincial rates, for all periods examined, and for both genders. Further, no excess rates in 'sentinel' cancers for radiation-based exposures, such as leukemia, were seen.

While patterns were not unusual, a few specific cancer types had rates that were significantly different from provincial rates, as would be expected by random variation alone. On average, one in 20 risk estimates (5%) will show a statistically significant increase or decrease in risk by chance alone (i.e. because of random variation). In Port Hope about 20 cancer sites had at least four cases within site-gender-period specific analyses allowing for at least marginally stable site, gender and period-specific rate estimates. Thus, when calculating rates for Port Hope for about 20 individual cancer sites, for men and women separately, one would expect on average to see two cancer sites in each period examined to have a statistically significant increase or decrease in risk by chance alone. The number of sites expected to appear significant by chance alone is from two to four in other communities. Additional significant sites would be expected when risk estimates for men and women are combined.

For the period 1986-1996 (using postal code data to assign residence), for which rates of cancers in other municipalities were also determined, cancers of the pharynx, colon and rectum, and lung were elevated among women in Port Hope and ovarian cancer was lower than expected based on provincial rates. Differences in rates among males were not noted. In the comparison communities, similar patterns in terms of overall numbers of significant differences in cancer rates were observed. In Cobourg, one cancer site was higher than expected among women, while in Lindsay, one site was higher and one decreased. In Orillia, two cancer sites among men and one among women were elevated. Among men in Belleville, one cancer site was elevated and two decreased while among women three sites were elevated and four decreased.

Thus, as expected, several statistically significant differences between selected cancer incidence rates in Port Hope and the Province were noted. This general pattern showing a few significant cancer rates out of the 45 cancer types examined in each community appeared comparable across communities.

In addition to chance differences in cancer rates observed in the communities, differences could also occur if local life-style factors or environmental factors in the communities affect rates by differing from provincial averages. It is difficult, however, to determine when it is chance or other factors such as lifestyle or environment that result in significant differences in rates, particularly on the basis of a snapshot view of cancer rates alone for one period in a community.

Examination of data for consistent patterns gives some guidance as to whether results are likely due to chance or other factors. In terms of such consistency, it is notable that none of the cancers in any of the communities are in excess among both genders. In Port Hope, for which longer period data (1971-1985) were examined in addition to the data of 1986-1996, none of the significant differences in specific cancer rates seen during the 1986-1996 period were consistently noted across gender and or time periods, thus certainly suggesting a role for chance. Possible exceptions are brain cancer and lung cancer among women. The former shows elevated rates in women for both periods and among men in the recent (1986-1996) period. While these results are not significant in any of these examinations except among women in the 1986-1996 data according to the MOH data (and this result includes cases not assigned to the community on

the basis of postal code data as discussed later in report), there is some suggestion of consistency of raised rates over time and gender. Given the rarity of the cancer, significant excesses would be difficult to obtain, thus a lack of significance is not surprising. A statistically significant excess of brain cancer was seen among children for the period 1971-1985; these cases were also included in the aforementioned analyses (data on all ages combined). With respect to lung cancer among women in 1986-1996, although it is not elevated in the earlier period or among males during any time, it is accompanied by excess pharyngeal cancer among women in the 1986-1996 period. As both have smoking as a strong risk factor, their concurrent appearance may be suggestive of a lifestyle effect .

Sub-municipal analyses:

The SENES (1995) report on exposure estimates included contributions from radon gas and radon progeny, gamma radiation, and uranium and radium exposures. Radon levels were based on the 1975-1976 grab sampling survey involving large sampling variation within individual residences. Increased precision was obtained because of the large number of measurements made. Radon concentrations for 1977-1986 used preremedial levels because of the complexities of the clean-ups, and values for the 1987-1993 period excluded measurements in homes where remedial actions had been completed. Indoor radon was the largest contribution to total exposure (SENES 1995). It is not known how well these measurements characterize institutions such as seniors' residences and nursing homes. In general, multi-unit apartments have lower radon levels than individual residences and seniors living in retirement homes may have received the majority of their exposure at other residences.

According to areas of town grouped according to the SENES based estimated radiation exposures, this report shows during the 1986-1996 period a higher than expected rate of lip cancer among men, and lung and colorectal cancers among women, living in the area where radiation was slightly above background. Information on the distribution of relevant risk factors across the community, such as smoking or diet, which might be responsible for such increases in any given area, was not available. It was notable however that the lowest dose grouping showed statistically significant deficits in lung cancer among females, and all cancer rates and lung cancer rates among males and females combined. Among both genders combined, 143 cases of cancer occurred in this group, whereas 181 would have been expected. Similarly, while 27 cases of lung cancer were expected, 15 were observed. This pattern remains after adjusting for the number of records with missing postal code. As one would not expect a protective effect from residing in the areas of the lowest estimated dose on the basis of dose itself, other factors may therefore be impacting on cancer rate variability within regions of the community. This possibility is supported by the lung cancer case control study conducted in the 1980's (Lees 1987), which found a strong correlation between homes requiring remediation (contaminated areas) and smoking prevalence.

In terms of association of observed patterns with radiation exposures, the reported association between lung cancer and radon progeny from studies of miners and the observed radon levels makes a radon and lung cancer relationship plausible (NRC 1999, Boice 1996). However, smoking is a more likely, and certainly stronger, risk factor. A relationship with colorectal cancer is much less plausible. Colon cancer has occasionally been associated with radiation, while rectum cancer has been rarely associated with radiation (Boice 1996). No association between lip, or colorectal cancer and radon has been observed in miner studies (NRC 1999) and a trend with increased potential exposure was not observed in the present report. The finding of excess lung and colorectal cancers among women is not consistent with what is known about cancer risk following radiation exposure. Based on occupational studies, it is well established that indoor radon exposure can cause lung cancer and radon was the main source of radiation exposure in the Port Hope population. However, the doses received by the population would not be expected to increase the rate of lung cancer to the degree seen. Based on the mid-points of the estimated exposure ranges an excess of 1.36 minus 1.00 or 0.36 mSv/y was observed between the highest and lowest exposure groups using the 1967-1976 estimates and most exposure was over the 1955-1976 period. Nevertheless, levels in the three groups were close to background levels. Using the combined lifetime risk for fatal and non-fatal cancer of 6×10^{-5} per mSv (ICRP-60) yields 25 years exposure x 0.36 mSv x (6×10^{-5}) x 2500 women in the EA group in 1996 which results in 1.4 excess cases among all cancer sites.

Thus, on the basis of existing knowledge, the number of excess lung cancers observed in the highest estimated dose group of EAs appears much higher than predicted. Although there is recognition in the scientific community that estimates of risk may be somewhat imprecise, that they would be off by a factor as extensive as suggested here is very unlikely. Smoking, which is a far greater contributor to lung cancer than radiation exposure, may explain this observation, but unfortunately information on the smoking patterns of women in Port Hope was not available.

In this report, a second approach to delineating 'exposure' was based on an area with the greatest contamination of uranium and heavy metals. An excess of about 5 cases of kidney cancer was observed in these southern EAs during 1986-1996. That exposure to ionizing radiation would be associated with this finding is unlikely, as radiation exposure has rarely been associated with kidney cancer, other than historically for specialized medical treatments (Boice 1996, McLaughlin 1996). The possibility of a relationship between indoor radon and kidney cancer is much more uncertain than for radon exposure and lung cancer, and there is no evidence of excess kidney cancer from studies of uranium miners exposed to radon (NRC 1999). Heavy metals, however, have the potential to affect kidney function. Arsenic is a systemic carcinogen and at high levels has been associated with excess kidney cancer, as well as other cancer sites. (Cantor 1996, Chen 1992, Enterline 1995). Although the kidney is affected by exposure to high levels of uranium, the main chemical effect of uranium is nephritis. Uranium exposure has not been linked to kidney cancer. The OME (1991) evaluation of possible pathways of exposure for

metals and radionuclides indicated that levels measured in Port Hope were not expected to result in adverse health outcomes. As described below, lifestyle factors including smoking and obesity are associated with kidney cancer. The overall rates for kidney cancer for Port Hope were very close to those expected based on provincial rates.

Confounding risk factors

The prevalence of primary risk factors other than radiation or chemical exposures, if differing between the referent (Ontario) and Port Hope, could explain the observed differences in incidence rates. They could also explain trends within Port Hope if levels varied across the exposure groups. For confounding to occur the factor must be correlated with the exposure in addition to being predictive of disease. A brief summary of risk factors for cancer sites discussed above is included here as background.

The primary risk factors for lip cancer include sunlight and tobacco products and for pharynx include tobacco products and alcohol (Blot 1996a). Increased risks for cancers of the oral cavity and pharynx have been reported for tobacco, alcohol and diets low in fruit and vegetables (Blot 1996a). Risk factors for colorectal cancer include high dietary fat and meat intake, and low intake of fibre, fruits and vegetables (Potter 1993). Increased risk for of cancers of the nose and sinuses have been associated with occupational factors.

Kidney cancer is separated into renal cell carcinoma (75% of cases on average) and cancer of the renal pelvis and ureter. About 50% of renal cell carcinoma has been attributable to the three major factors excess weight, hypertension and smoking and the latter is also the major risk factor for cancer of the renal pelvis and ureter (McLaughlin 1996, Benichou 1998). The causes of most brain/nervous system cancers are not known, but increased risks have been reported in some cohorts of petrochemical, rubber, and agricultural workers, for head trauma and for high exposures to radiation such as was possible for dental x-rays in the 1940s or earlier and other medical treatments. Brain cancer is not considered among the more radiosensitive cancers (Boice 1996). A role for n-nitroso compounds primarily in the diet has been hypothesized and tobacco including environmental tobacco smoke also has a role (Preston-Martin 1996). A small number of cases of non-Hodgkin's lymphoma (NHL) were observed in Port Hope at younger ages; risk factors for NHL are largely unknown.

The primary risk factor for lung cancer is smoking with other factors including occupational level exposures to radon, arsenic, chromium, polycyclic hydrocarbons, and chloromethyl ethers (Blot 1996b). Evidence from studies of residential radon have been considered consistent with extrapolations from the higher levels observed in occupational studies. The fact that results of residential studies conducted to date have been somewhat equivocal may be due to the difficulties resulting from studying the relatively low relative risks (NRC 1999). An earlier study of lung cancer in Port Hope (Lees 1987) reported a strong correlation (confounding) between exposure in a 'problem' home (greater than the background level of 60 Bq/m^3) and smoking, and also a strong relative risk for smoking. The SENES Consultants report (1995)

noted that new residential developments have since occurred in uncontaminated areas and further from the refinery. If residents of new developments differ in risk factor prevalence from established neighbourhoods, confounding may occur.

Levels of smoking prevalence were obtained at the Health Unit level from the OHS. The Town of Port Hope is included in the Haliburton-Kawartha-Pine Ridge Health Unit which is considerably larger than the town and comprises three Census Divisions (CDs) or counties, Northumberland, Victoria, and Haliburton. Cobourg and Lindsay are also located in this Health Unit. The percentage of current smokers among the population 12 and over (excluding non-responders) in this Health Unit was slightly higher than for the province (34.0% vs. 32.0% among men; 29.4% vs. 28.3% among women), with a 95% confidence interval of approximately ±5.5% for men and women separately based on the approximate OHS sampling variability tables. As a result, it was not possible to rule out differences of this magnitude for the Health Unit from the province and no estimate of smoking prevalence in Port Hope is available. In Hastings-Prince Edward Health Unit (containing Belleville) and Simcoe County Health Unit (containing Orillia), percentages of current smokers were marginally lower (31.1%, 31.4%) for men but higher (29.5%, 30.7%) for women than for provincial averages.

Impact of the source of residence code on cancer rates

Since each location data source has certain shortcomings, cancer rates according to both sources of residence location were presented in this report for the period 1986-1996. Specifically, municipal location codes (MOH residence data) tend to overstate the numbers of cases in any given municipality, because cases of cancer diagnosed in the rural areas surrounding municipalities are often added to those occurring in the municipality. This tends to overestimate the number of cases occurring in a town, and therefore, inflate the municipal cancer rates. By contrast, because it is easy to make mistakes in recording postal codes, cases may be wrongly classified, either into or out of the community, and thus over- or under-estimate rates. The problem with municipal codes is therefore one of bias, because cancer risk tends to be estimated higher than it actually is. In contrast, the problem with postal codes is that of misclassification, which tends to reduce the significance of any observed risk.

The postal codes, which use full addresses as opposed to municipal names, are generally considered more accurate for differentiating rural and suburban residences outside the boundaries of a central urban municipality from those in the central municipality. A study in the Kingston area indicated postal code had the potential to be the more accurate based on a manual follow up of cases with the attending physician (Marrett 1992). The SIR for the City of Kingston was overestimated by about 10% based on the MOH code, with some misclassification in both directions. However, the study also found that postal code in the OCR data did not match that generated from the physician supplied address in 3-13% of cases. A more recent data quality study indicated a difference of 10.2% in the first three characters of the postal code and an additional difference of 8.2% for any character when the Ontario Property Assessment roll was used as the gold standard and compared to information on the Ontario Cancer Registry

(Holowaty 1996). For the MOH code the difference with the gold standard was 2.1% at the county level and an additional 13.5% at the municipal level.

Based on studies of residence data quality such as that conducted in the Kingston region described above, it was therefore expected that a percentage of cases with a Port Hope MOH code resided outside the town boundaries. This was confirmed, as for the period 1986-1996, there were 5.3% fewer cancer cases assigned to Port Hope by using the postal code than the MOH residence code. Assuming the postal code to be the most appropriate method of assigning residence code to the Town of Port Hope, an adjustment (reduction) of 5.3% to reduce the SIRs based on the MOH code could be applied to obtain an estimate that would be expected to be obtained using postal codes . This could be used as a crude 'correction' and could be used to adjust the overall cancer SIRs provided for the period 1971-1985 and 1971-1996 based on the MOH data . However, this approach may not be applicable on a cancer specific type basis, where a difference in a few cancer cases may represent a large proportion of cases assigned by the MOH code, as this would affect the SIRs to a much greater extent.

As also anticipated, some discrepancies in findings according to the source of residential code were also noted on a cancer site specific basis. For the period 1986-1996, significantly elevated risks were seen for lip cancer among males, and brain cancer among women, using the MOH data to assign residence. When residence was assigned using the postal code data, none of these cancer rates were significantly raised. In contrast, pharyngeal cancer and colorectal cancers among women were significantly elevated according to the 1986-1996 postal code data, but not MOH data. If improving the accuracy of the residence assignment is a priority for cancer sites listed as elevated in the present report in order to better assess which of these experienced a true excess, then work will be needed to confirm residence location. This work would require a manual follow up, most likely with the attending physician. Such work could also include sites with significantly elevated rates for the 1971-1985 period during which postal code was not available. However, given the time elapsed since diagnosis of these cases, some remaining uncertainty may be expected. A chart review will also be useful for confirming diagnosis of a primary as opposed to secondary cancer, which for cancers such as brain cancer, can be an important issue to address due to the potential for misclassification. However, no adjustment could be made to the comparison with Ontario rates since brain cancers outside of Port Hope would not be correspondingly adjusted.

An example which illustrates this is the 8 cases of brain cancer among women for 1986-1996 assigned to the community of Port Hope based on postal code versus the 11 cases based on the MOH code. The postal codes for the additional 3 cases indicated the residences were outside the town boundary and therefore should not be included in totals for the town. An almost 30% difference in cases leads to the different estimates of risk, and results in a different statistical interpretation of results.

Thus, while data quality studies indicate the MOH code is highly accurate at the county level, they show that these typically overestimates cases in an urban municipality surrounded by rural

municipalities. As the PC data is also prone to errors, more random in nature and thus potential for misclassification of residence exists, conclusions about should be considered subject to a chart review with manual follow up when a small number of cases, such as in the case of brain cancer, is at issue.

Concluding comments

The OCR data allows a comparison of the cancer incidence rates for Port Hope to provincial rates. Interpretation of this report must consider that it is an ecologic study, and as such, has several limitations including a lack of information regarding cumulative personal exposure to radiation levels, chemical contaminants and cigarette smoking. Further, misclassification from migration or incorrect residence assignment, if random, would result in a bias towards a null result. The tendency of MOH data to assign rural cases to communities causes a bias to increased rates. That mobility would have an impact is obvious. The 1991 census reported 25.2% of Ontario residents living in a different census subdivision (municipality) than that 5 years earlier, and 28.0% of Port Hope residents. Almost 50% of Port Hope residents had moved during that period (Statistics Canada 1993c). For Canada the percentage of persons who lived in a different municipality 5 years previous ranged from 23.5% overall to 10.7% among persons age 65 or more.

This review shows that the numbers of total cancer cases in Port Hope are within the expected values calculated by applying the provincial rates. The absence of an increase in leukemia rates, and other radiosensitive sites, does not support the hypothesis that radiation exposures in the community impact on resident health. Particularly the absence of excess leukemia cancer rates among children is reassuring, as the minimum latency for childhood leukemia is short and the radiation risk coefficients relatively high. Further, no trend is evident in rates of leukemia across levels of exposures, nor is there evidence of excess rates seen in areas with the highest estimated exposure. Although the power to detect risk at this sub-regional analyses was limited, the study nevertheless indicates that large radiation risks are not occurring in any one location.

Increased radon exposures are known to be a risk factor for lung cancer, and thus excess lung cancer in the community could therefore indicate impact of residential radon exposures. The lung cancer rates in this study were increased among women in the most recent period, but not among males, or for either gender in an earlier period. Although the increases as described for the recent period were in the areas with small increases above background radon levels before remedial work, the levels reported in Port Hope are not of a magnitude at which a detectable increase in lung cancer are expected. The earlier carefully conducted analytic epidemiologic investigation (Lees 1987) indicates that caution should be used in interpreting the current ecologic report because (1) occupational exposures may be important; (2) nearly one-third of the population with lung cancer did not live long enough in the community to receive a meaningful dose; (3) cigarette smoking was a significant (20-fold) risk factor; and (4) very high radiation levels were not apparent for most subjects. The likelihood that smoking is a more likely risk factor than radon exposure in the community was supported by the Lees investigations' finding

that smoking and higher radon exposures were highly correlated. The role of smoking is further supported by the observation that the excess rate of lung cancer among women in the recent period is accompanied by excess pharyngeal cancer among women, and both these cancers are strongly associated with smoking.

The absence of an effect among men on lung cancer, as well as on all cancer rates combined or any evidence of consistent elevations in specific cancers over periods, is also noteworthy, since many men would be expected to have received historic occupational as well as environmental exposures. A mortality analysis of the Port Hope Eldorado cohort also showed no elevation in overall cancer rates (Nair 1984). As nasal cancers were not listed separately, it was not possible to assess the potential of the excess nasal/sinus cancer seen among men in the 1971-1985 period as being attributable to local occupational exposures.

In conclusion, continued periodic cancer incidence surveillance for the community would be prudent, given a history of contamination and the on-going public concerns over health impacts. A residence validation for the brain cancer cases would provide further guidance on the importance of this cancer site for further work. Conducting more analytic studies, such as case-control investigations of certain cancer sites, would not seem a useful exercise based on the data presented in this survey. Application of existing risk assessment knowledge will likely continue to be important because of the limited number of cases available for conventional studies (see Appendix C) and difficulties in modelling historic exposures.

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List of Acronyms

AECB - Atomic Energy Control Board
AECL - Atomic Energy of Canada Limited
ASIR - Age standardized incidence rate
BEIR - Biological Effects of Ionizing Radiations
CA - Census Agglomeration (total of all component municipalities)
CI - Confidence Interval
CD - Census Division
CNSC - Canadian Nuclear Safety Commission
EA - Enumeration Area
HWC - Health and Welfare Canada
IARC - International Agency for Research on Cancer
ICD - International Classification of Diseases
ICRP - International Commission on Radiological Protection
LLRWMO - Low-level Radioactive Waste Management Office (of AECL)
MH - Mantel-Haenszel
MOH - Ministry of Health
NHL - Non-Hodgkin's lymphoma
NRC - National Research Council (United States)
OCR - Ontario Cancer Registry
OHS - Ontario Health Survey
OME - Ontario Ministry of the Environment
RWRD - Radioactive Waste and Radiation Division (of Natural Resources Canada)
RR - Relative Risk
SIR - Standardized Incidence Ratio
SGC - Standard Geographic Code
WL - Working Level, a former non S.I. unit for radon daughter (progeny) levels

Tables

1. Cancer Incidence 1986 to 1996 for Port Hope, All Ages. All Cancers and Cancer Sites Significantly Different from Province, Based on Postal Code
2a. Cancer Incidence for Males from 1986 to 1996 for Port Hope and Other Regions. Selected Cancer Sites, All Ages, Based on Postal Code
2b. Cancer Incidence for Females from 1986 to 1996 for Port Hope and Other Regions. Selected Cancer Sites, All Ages, Based on Postal Code
2c. Cancer Incidence for Males and Females from 1986 to 1996 for Port Hope and Other Regions. Selected Cancer Sites, All Ages, Based on Postal Code
2d. Childhood Cancer Incidence for Males and Females from 1986 to 1996 for Port Hope and Other Regions. All Cancers and Leukemia, Ages 0-19, Based on Postal Code
2e. Summary of Cancer Sites of Statistical Significance, All Communities 1986-1996, Based on Postal Code
3a. Cancer Incidence for Males from 1986 to 1996 for Port Hope by Period and Method, Selected Cancer Sites, All Ages
3b. Cancer Incidence for Females from 1986 to 1996 for Port Hope by Period and Method, Selected Cancer Sites, All Ages
3c. Cancer Incidence for Males and Females from 1986 to 1996 for Port Hope by Period and Method, Selected Cancer Sites, All Ages
4. Childhood Cancer Incidence in Port Hope by Period and Method, Selected Cancer Sites, Males and Females Ages 0-19
5a. Standardized Incidence Ratios By Radiation Exposure Group, Males, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages
5b. Standardized Incidence Ratios By Radiation Exposure Group, Females, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages
5c. Standardized Incidence Ratios By Radiation Exposure Group, Males and Females, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages
6. Cancer Incidence 1986 to 1996 for Port Hope, Southern EA Group, Selected Cancer Sites, All Ages

Figure

1. Port Hope, Ontario, with 1991 Enumeration Areas

Appendix Tables

A1. 1996 Populations by Geographic Codes for Port Hope and Other Study Areas
A2. Percentage of Population with Education Less than Grade 9, Ages 15 and over, 1991 Census
A3. Percentage of Low Income Families in Population, 1991 Census

For Tables A4-A15 part b) contains results for men and women combined.

A4. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope T/CA, Based on Postal Code
A5. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Cobourg T/CA, Based on Postal Code
A6. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Lindsay CA, Based on Postal Code
A7. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Belleville CA, Based on Postal Code
A8. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Orillia CA, Based on Postal Code
A9. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1971 to 1985, Standard Population Canada 1991 - Area: Port Hope T/CA, Based on MOH Code
A10. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope T/CA, Based on MOH Code
A11. Incidence Rates per 100,000 and Standardized Incidence Ratios, 1971 to 1996, Standard Population Canada 1991 - Area: Port Hope T/CA, Based on MOH Code
A12. Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope, 1967-76 Total Adult Dose, Group 1
A13. Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope, 1967-76 Total Adult Dose, Group 2
A14. Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope, 1967-76 Total Adult Dose, Group 3
A15. Standardized Incidence Ratios, 1986 to 1996, Standard Population Canada 1991 - Area: Port Hope, Southern EA Group

Appendix B

Cancer Site Definitions

Appendix C

Sample Size

References

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Table 1. Cancer Incidence 1986 to 1996 for Port Hope, All Ages
All Cancers and Cancer Sites Significantly Different from Province, Based on Postal Code

Cancer Site	Gender	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	Men	275	437.3		0.93		(0.82 - 1.05)
	Women	314	365.8		1.07		(0.95 - 1.19)
	Combined	589	401.6		1.00		(0.92 - 1.08)
Pharynx							
	Men	<5			<1.00		
	Women	5	7.3	++	4.17	+	(1.35 - 9.58)
Liver							
	Combined	<5			<1.00	-	
Colon and rectum							
	Men	42	67.0		1.03		(0.75 - 1.40)
	Women	61	69.3	++	1.42	+	(1.09 - 1.82)
	Combined	103	68.1	+	1.23	+	(1.01 - 1.49)
Lung							
	Men	57	90.8		1.05		(0.80 - 1.36)
	Women	44	55.4	+	1.35		(0.98 - 1.81)
	Combined	101	73.1		1.16		(0.95 - 1.41)
Ovary							
	Women	5	5.8	-	0.43	-	(0.14 - 0.99)

Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01
+ Significantly high, p-value < 0.05
Blank - not significant
- Significantly low, p-value < 0.05
-- Significantly low, p-value < 0.01

Table 2a. Cancer Incidence for Males from 1986 to 1996 for Port Hope and Other Regions, Selected Cancer Sites, All Ages, Based on Postal Code

Cancer Site	Region	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	Ontario	232869	471.1		1.00		
	Port Hope CA	275	437.3		0.93		(0.82 - 1.05)
	Cobourg CA	442	481.9		1.02		(0.93 - 1.12)
	Lindsay CA	621	456.7		0.97		(0.89 - 1.05)
	Belleville CA	2337	464.2		0.99		(0.95 - 1.03)
	Orillia CA	1081	490.5		1.04		(0.98 - 1.10)
Lung							
	Ontario	43025	86.0		1.00		
	Port Hope CA	57	90.8		1.05		(0.80 - 1.36)
	Cobourg CA	95	101.5		1.19		(0.96 - 1.45)
	Lindsay CA	111	81.1		0.94		(0.77 - 1.13)
	Belleville CA	483	93.9		1.09		(1.00 - 1.20)
	Orillia CA	214	95.5		1.10		(0.96 - 1.26)
Breast							
	Ontario	407	0.8		1.00		(0.91 - 1.10)
	Port Hope CA	<5			<1.00		
	Cobourg CA	<5			<1.00		
	Lindsay CA	<5			<1.00		
	Belleville CA	<5			<1.00		
	Orillia CA	<5			>1.00		
Thyroid							
	Ontario	1438	2.7		1.00		(0.95 - 1.05)
	Port Hope CA	<5			<1.00		
	Cobourg CA	<5			<1.00		
	Lindsay CA	<5			<1.00		
	Belleville CA	7	1.4		0.52		(0.21 - 1.06)
	Orillia CA	<5			<1.00		
Leukemia							
	Ontario	7721	15.7		1.00		(0.98 - 1.02)
	Port Hope CA	9	14.5		0.92		(0.42 - 1.73)
	Cobourg CA	12	14.2		0.86		(0.44 - 1.49)
	Lindsay CA	26	21.2		1.24		(0.81 - 1.82)
	Belleville CA	110	23.1	++	1.42	++	(1.17 - 1.72)
	Orillia CA	32	15.4		0.95		(0.65 - 1.35)

Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

Table 2b. Cancer Incidence for Females from 1986 to 1996 for Port Hope and Other Regions, Selected Cancer Sites, All Ages, Based on Postal Code

Cancer Site	Region	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	Ontario	216435	348.9		1.00		
	Port Hope CA	314	365.8		1.07		(0.95 - 1.19)
	Cobourg CA	433	346.7		0.99		(0.90 - 1.09)
	Lindsay CA	610	346.8		1.00		(0.92 - 1.08)
	Belleville CA	2295	363.2		1.05	+	(1.01 - 1.09)
	Orillia CA	992	370.2		1.05		(0.99 - 1.12)
Lung							
	Ontario	23794	38.1		1.00		
	Port Hope CA	44	55.4	+	1.35		(0.98 - 1.81)
	Cobourg CA	49	40.4		0.99		(0.73 - 1.31)
	Lindsay CA	75	42.1		1.09		(0.86 - 1.36)
	Belleville CA	320	50.3	++	1.31	++	(1.17 - 1.46)
	Orillia CA	120	43.6		1.12		(0.93 - 1.34)
Breast							
	Ontario	60765	99.5		1.00		(0.99 - 1.01)
	Port Hope CA	76	95.5		0.97		(0.76 - 1.21)
	Cobourg CA	117	95.7		1.00		(0.83 - 1.20)
	Lindsay CA	145	90.3		0.90		(0.76 - 1.06)
	Belleville CA	637	103.8		1.05		(0.97 - 1.14)
	Orillia CA	270	101.8		1.06		(0.94 - 1.20)
Thyroid							
	Ontario	4556	8.0		1.00		(0.97 - 1.03)
	Port Hope CA	<5			<1.00		
	Cobourg CA	5	6.2		0.70		(0.23 - 1.61)
	Lindsay CA	12	9.3		1.26		(0.65 - 2.19)
	Belleville CA	27	4.9	-	0.65	-	(0.43 - 0.94)
	Orillia CA	18	9.1		1.11		(0.66 - 1.76)
Leukemia							
	Ontario	6026	9.6		1.00		(0.97 - 1.03)
	Port Hope CA	9	8.1		1.05		(0.48 - 1.97)
	Cobourg CA	11	8.0		0.87		(0.43 - 1.55)
	Lindsay CA	19	11.0		1.05		(0.63 - 1.64)
	Belleville CA	72	11.0		1.18		(0.92 - 1.48)
	Orillia CA	31	11.3		1.15		(0.78 - 1.64)

Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

Table 2c. Cancer Incidence for Males and Females from 1986 to 1996 for Port Hope and Other Regions, Selected Cancer Sites, All Ages, Based on Postal Code

Cancer Site	Region	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	Ontario	449304	410.0		1.00		
	Port Hope CA	589	401.6		1.00		(0.92 - 1.08)
	Cobourg CA	875	414.3		1.01		(0.94 - 1.07)
	Lindsay CA	1231	401.7		0.98		(0.93 - 1.04)
	Belleville CA	4632	413.7		1.02		(0.99 - 1.05)
	Orillia CA	2073	430.4	+	1.05	+	(1.00 - 1.09)
Lung							
	Ontario	66819	62.1		1.00		
	Port Hope CA	101	73.1		1.16		(0.95 - 1.41)
	Cobourg CA	144	70.9		1.11		(0.94 - 1.31)
	Lindsay CA	186	61.6		0.99		(0.86 - 1.15)
	Belleville CA	803	72.1	++	1.17	++	(1.09 - 1.25)
	Orillia CA	334	69.6	+	1.11		(1.00 - 1.24)
Breast							
	Ontario	61172	50.2		1.00		(0.99 - 1.01)
	Port Hope CA	76	47.8		0.96		(0.76 - 1.20)
	Cobourg CA	117	47.9		1.00		(0.82 - 1.19)
	Lindsay CA	145	45.1		0.89		(0.75 - 1.05)
	Belleville CA	639	52.1		1.05		(0.97 - 1.13)
	Orillia CA	273	51.6		1.06		(0.94 - 1.20)
Thyroid							
	Ontario	5994	5.4		1.00		(0.97 - 1.03)
	Port Hope CA	<5			<1.00		
	Cobourg CA	6	3.6		0.65		(0.24 - 1.39)
	Lindsay CA	15	6.1		1.20		(0.67 - 1.97)
	Belleville CA	34	3.2	--	0.62	--	(0.43 - 0.86)
	Orillia CA	19	4.8		0.88		(0.53 - 1.38)
Leukemia							
	Ontario	13747	12.6		1.00		(0.98 - 1.02)
	Port Hope CA	18	11.3		0.98		(0.58 - 1.54)
	Cobourg CA	23	11.1		0.86		(0.55 - 1.29)
	Lindsay CA	45	16.1		1.15		(0.84 - 1.54)
	Belleville CA	182	17.0	++	1.32	++	(1.13 - 1.52)
	Orillia CA	63	13.4		1.04		(0.80 - 1.33)

Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

Table 2d. Childhood Cancer Incidence for Males and Females from 1986 to 1996 for Port Hope and Other Regions, All Cancers and Leukemia, Ages 0-19, Based on Postal Code

Cancer Site	Region	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	Ontario	5290	17.5		1.00		(0.97 - 1.03)
	Port Hope CA	5	14.1		0.82		(0.26 - 1.87)
	Cobourg CA	9	21.4		1.22		(0.56 - 2.29)
	Lindsay CA	13	21.7		1.24		(0.66 - 2.12)
	Belleville CA	50	18.2		1.03		(0.76 - 1.36)
	Orillia CA	15	14.8		0.85		(0.48 - 1.40)
Leukemia							
	Ontario	1381	4.6		1.00		(0.95 - 1.05)
	Port Hope CA	<5			<1.00		
	Cobourg CA	<5			>1.00		
	Lindsay CA	8	13.1	++	2.91	+	(1.26 - 5.70)
	Belleville CA	16	5.8		1.27		(0.73 - 2.06)
	Orillia CA	<5			<1.00		

Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

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Table 2e. Summary of Cancer Sites of Statistical Significance, All Communities 1986-1996, Based on Postal Code

Community	Sites Significant Among Men	Number Observed (Expected)	SIR (95% CI)	Sites Significant Among Women	Number Observed (Expected)	SIR (95% CI)
Port Hope	**none significant**			**pharynx**	**5 (1.2)**	**4.17 (1.35-9.58)**
				colon and rectum	**61 (43.0)**	**1.42 (1.09-1.82)**
				lung	**44 (32.7)**	**1.35 (0.98-1.81)**[1]
				ovary	**5 (11.6)**	**0.43 (0.14-0.99)**
Cobourg	none significant			melanoma	20 (11.0)	1.81 (1.11-2.79)
Lindsay	**none significant**			**uterus excluding cervix**	**47 (34.2)**	**1.38 (1.01-1.83)**
				stomach	**5 (13.3)**	**0.37 (0.12-0.86)**
Belleville	leukemia	110 (77.2)	1.42 (1.17-1.72)	all sites combined	2295 (2185.3)	1.05 (1.01-1.09)[2]
	prostate	430 (535.4)	0.80 (0.73-0.88)	nasopharynx	7 (2.4)	2.95 (1.19-6.03)
	ill-defined and unknown	64 (86.7)	0.74 (0.57-0.94)	small intestine	12 (6.1)	1.97 (1.02-3.44)
				lung	320 (245.0)	1.31 (1.17-1.46)
				cervix[3], thyroid[3] other/ill-defined[3] Hodgkin's disease[3]		
Orillia	**lip**	**17 (8.9)**	**1.91 (1.11-3.05)**	**cervical**	**38 (23.2)**	**1.64 (1.16-2.25)**
	colorectal	**170 (143.9)**	**1.18 (1.01-1.37)**			

[1] SIR not significant
[2] ASIR not significant
[3] also significantly lower

Table 2e. Summary of Cancer Sites of Statistical Significance, All Communities 1986-1996, Based on Postal Code

Community	Sites Significant Among Men	Number Observed (Expected)	SIR (95% CI)	Sites Significant Among Women	Number Observed (Expected)	SIR (95% CI)
[redacted]					[redacted]	[redacted]
Cobourg	none significant			melanoma	20 (11.0)	1.81 (1.11-2.79)
[redacted]					[redacted]	[redacted]
Belleville	leukemia	110 (77.2)	1.42 (1.17-1.72)	all sites combined	2295 (2185.3)	1.05 (1.01-1.09)[2]
	prostate	430 (535.4)	0.80 (0.73-0.88)	nasopharynx	7 (2.4)	2.95 (1.19-6.03)
	ill-defined and unknown	64 (86.7)	0.74 (0.57-0.94)	small intestine	12 (6.1)	1.97 (1.02-3.44)
				lung	320 (245.0)	1.31 (1.17-1.46)
				cervix[3], thyroid[3] other/ill-defined[3] Hodgkin's disease[3]		
[redacted]					[redacted]	[redacted]

[1] SIR not significant
[2] ASIR not significant
[3] also significantly lower

Table 3a. Cancer Incidence for Males in Port Hope by Period and Method, Selected Cancer Sites, All Ages

Cancer Site	Period and method	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	1971-1985, MOH code	279	413.8		0.99		(0.88 - 1.11)
	1986-1996, postal code	275	437.3		0.93		(0.82 - 1.05)
	1986-1996, MOH code	297	474.5		1.01		(0.89 - 1.13)
	1971-1996, MOH code	576	442.2		1.00		(0.92 - 1.08)
Lip							
	1971-1985, MOH code	5	7.1		1.12		(0.36 - 2.56)
	1986-1996, postal code	6	9.4	+	2.35		(0.86 - 5.06)
	1986-1996, MOH code	7	11.2	++	2.75	+	(1.10 - 5.60)
	1971-1996, MOH code	12	9.2		1.71		(0.88 - 2.97)
Pharynx							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	<5			<1.00		
	1986-1996, MOH code	<5			<1.00		
	1971-1996, MOH code	<5			<1.00		
Esophagus							
	1971-1985, MOH code	10	16.0	++	2.41	+	(1.16 - 4.41)
	1986-1996, postal code	<5			<1.00		
	1986-1996, MOH code	<5			<1.00		
	1971-1996, MOH code	NA			>1.00		
Colon and rectum							
	1971-1985, MOH code	38	55.6		0.93		(0.66 - 1.28)
	1986-1996, postal code	42	67.0		1.03		(0.75 - 1.40)
	1986-1996, MOH code	44	70.4		1.08		(0.79 - 1.46)
	1971-1996, MOH code	82	63.0		1.01		(0.80 - 1.25)
Nose/sinuses							
	1971-1985, MOH code	5	7.6	++	5.61	++	(1.81 - 12.88)
	1986-1996, postal code	<5			<1.00		
	1986-1996, MOH code	<5			>1.00		
	1971-1996, MOH code	NA		++	>1.00	++	
Lung							
	1971-1985, MOH code	67	99.8		1.13		(0.88 - 1.44)
	1986-1996, postal code	57	90.8		1.05		(0.80 - 1.36)
	1986-1996, MOH code	61	97.1		1.13		(0.86 - 1.45)
	1971-1996, MOH code	128	98.4		1.13		(0.94 - 1.34)
Brain and nervous system							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	7	11.0		1.31		(0.53 - 2.67)
	1986-1996, MOH code	8	12.7		1.49		(0.65 - 2.92)
	1971-1996, MOH code	NA			<1.00		

Legend: See Table 3c

Table 3b. Cancer Incidence for Females in Port Hope by Period and Method, Selected Cancer Sites, All Ages

Cancer Site	Period and method	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	1971-1985, MOH code	307	329.9		1.01		(0.90 - 1.13)
	1986-1996, postal code	314	365.8		1.07		(0.95 - 1.19)
	1986-1996, MOH code	325	379.7		1.11		(0.99 - 1.23)
	1971-1996, MOH code	632	354.8		1.06		(0.98 - 1.14)
Lip							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	<5			<1.00		
	1986-1996, MOH code	<5			<1.00		
	1971-1996, MOH code	<5			<1.00		
Pharynx							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	5	7.3	++	4.17	+	(1.35 - 9.58)
	1986-1996, MOH code	<5			>1.00		
	1971-1996, MOH code	5	3.3		1.85		(0.60 - 4.24)
Esophagus							
	1971-1985, MOH code	<5			>1.00		
	1986-1996, postal code	<5			>1.00		
	1986-1996, MOH code	<5			>1.00		
	1971-1996, MOH code	7	3.3		1.50		(0.60 - 3.06)
Colon and rectum							
	1971-1985, MOH code	52	53.3		1.03		(0.77 - 1.35)
	1986-1996, postal code	61	69.3	++	1.42	+	(1.09 - 1.82)
	1986-1996, MOH code	54	58.8		1.26		(0.94 - 1.64)
	1971-1996, MOH code	106	56.0		1.13		(0.93 - 1.37)
Nose/sinuses							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	<5			>1.00		
	1986-1996, MOH code	<5			>1.00		
	1971-1996, MOH code	<5			<1.00		
Lung							
	1971-1985, MOH code	20	19.9		0.93		(0.57 - 1.44)
	1986-1996, postal code	44	55.4	+	1.35		(0.98 - 1.81)
	1986-1996, MOH code	47	59.5	++	1.44	+	(1.06 - 1.91)
	1971-1996, MOH code	67	39.7	+	1.24		(0.96 - 1.57)
Ovary							
	1971-1985, MOH code	12	12.3		0.92		(0.47 - 1.60)
	1986-1996, postal code	5	5.8	-	0.43	-	(0.14 - 0.99)
	1986-1996, MOH code	5	5.8	-	0.43	-	(0.14 - 0.99)
	1971-1996, MOH code	17	9.1		0.69		(0.40 - 1.10)
Brain and nervous system							
	1971-1985, MOH code	9	9.9		1.73		(0.79 - 3.26)
	1986-1996, postal code	8	9.9		1.61		(0.70 - 3.15)
	1986-1996, MOH code	11	13.7	+	2.21	+	(1.11 - 3.94)
	1971-1996, MOH code	20	11.8	++	1.96	++	(1.20 - 3.03)

Legend: See Table 3c

Table 3c. Cancer Incidence for Males and Females in Port Hope by Period and Method, Selected Cancer Sites, All Ages

Cancer Site	Period and method	Number of Cases	Rate per 100,000	A.S.I.R. Flag	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers							
	1971-1985, MOH code	586	371.9		1.00		(0.92 - 1.08)
	1986-1996, postal code	589	401.6		1.00		(0.92 - 1.08)
	1986-1996, MOH code	622	427.1		1.06		(0.97 - 1.14)
	1971-1996, MOH code	1208	399.5		1.03		(0.97 - 1.09)
Lip							
	1971-1985, MOH code	5	3.6		0.95		(0.31 - 2.18)
	1986-1996, postal code	6	4.7		1.78		(0.65 - 3.82)
	1986-1996, MOH code	7	5.6	+	2.07		(0.83 - 4.23)
	1971-1996, MOH code	12	4.6		1.39		(0.72 - 2.42)
Pharynx							
	1971-1985, MOH code	<5			<1.00		
	1986-1996, postal code	NA			>1.00		
	1986-1996, MOH code	5	3.7		1.24		(0.40 - 2.84)
	1971-1996, MOH code	NA			<1.00		
Esophagus							
	1971-1985, MOH code	NA		++	>1.00	+	
	1986-1996, postal code	6	3.9		0.98		(0.36 - 2.10)
	1986-1996, MOH code	6	3.9		0.98		(0.36 - 2.10)
	1971-1996, MOH code	NA		+	>1.00		
Colon and rectum							
	1971-1985, MOH code	90	54.4		0.99		(0.79 - 1.21)
	1986-1996, postal code	103	68.1	+	1.23	+	(1.01 - 1.49)
	1986-1996, MOH code	98	64.6		1.17		(0.95 - 1.43)
	1971-1996, MOH code	188	59.5		1.07		(0.93 - 1.24)
Nose/sinuses							
	1971-1985, MOH code	5	3.8	++	2.86		(0.92 - 6.56)
	1986-1996, postal code	<5			<1.00		
	1986-1996, MOH code	<5			>1.00		
	1971-1996, MOH code	NA		++	>1.00	+	
Lung							
	1971-1985, MOH code	87	59.8		1.08		(0.87 - 1.33)
	1986-1996, postal code	101	73.1		1.16		(0.95 - 1.41)
	1986-1996, MOH code	108	78.3	+	1.24	+	(1.02 - 1.50)
	1971-1996, MOH code	195	69.1	+	1.17	+	(1.01 - 1.34)
Brain and nervous system							
	1971-1985, MOH code	NA			>1.00		
	1986-1996, postal code	15	10.4		1.45		(0.81 - 2.39)
	1986-1996, MOH code	19	13.2	+	1.84	+	(1.11 - 2.87)
	1971-1996, MOH code	NA			>1.00		

Table 3c. Legend

Age-standardized incidence rate (A.S.I.R.) Flag / Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

NA indicates total suppressed because a component is less than 5

Table 4. Childhood Cancer Incidence in Port Hope by Period and Method, Selected Cancer Sites, Males and Females, Ages 0-19

Cancer Site	Period and method	Number of Cases	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers					
	1971-1985, MOH code	13	1.76		(0.94 - 3.00)
	1986-1996, postal code	5	0.82		(0.26 - 1.87)
	1986-1996, MOH code	6	0.98		(0.36 - 2.10)
	1971-1996, MOH code	19	1.41		(0.85 - 2.19)
Brain and nervous system					
	1971-1985, MOH code	5	4.17	+	(1.35 - 9.57)
	1986-1996, postal code	<5	<1.00		
	1986-1996, MOH code	<5	<1.00		
	1971-1996, MOH code	NA	>1.00		
Non-Hodgkin's lymphoma					
	1971-1985, MOH code	<5	>1.00		
	1986-1996, postal code	<5	>1.00	+	
	1986-1996, MOH code	<5	>1.00	+	
	1971-1996, MOH code	<5	>1.00	+	
Leukemia					
	1971-1985, MOH code	<5	>1.00		
	1986-1996, postal code	<5	<1.00		
	1986-1996, MOH code	<5	<1.00		
	1971-1996, MOH code	5	1.41		(0.45 - 3.29)

Legend

Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

NA indicates total suppressed because a component is less than 5

Table 5a. Standardized Incidence Ratios By Radiation Exposure Group[1], Males, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages

Cancer Site	Exposure Group	Number of Cases	S.I.R.	P-value trend	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers				0.120		
	Group 1 (0.90-1.10 mSv/y)	68	0.73		--	(0.57 - 0.92)
	Group 2 (1.16-1.17 mSv/y)	70	0.89			(0.70 - 1.13)
	Group 3 (1.27-1.46 mSv/y)	115	0.93			(0.77 - 1.12)
Lip				0.110		
	Group 1 (0.90-1.10 mSv/y)	<5	>1.00			
	Group 2 (1.16-1.17 mSv/y)	<5	<1.00			
	Group 3 (1.27-1.46 mSv/y)	5	4.62		++	(1.49 - 10.60)
Colon and rectum				0.060		
	Group 1 (0.90-1.10 mSv/y)	18	1.41			(0.84 - 2.22)
	Group 2 (1.16-1.17 mSv/y)	12	1.11			(0.57 - 1.93)
	Group 3 (1.27-1.46 mSv/y)	12	0.71			(0.37 - 1.23)
Lung				0.041		
	Group 1 (0.90-1.10 mSv/y)	10	0.58			(0.28 - 1.07)
	Group 2 (1.16-1.17 mSv/y)	13	0.88			(0.47 - 1.51)
	Group 3 (1.27-1.46 mSv/y)	27	1.21			(0.80 - 1.76)

Table 5b. Standardized Incidence Ratios By Radiation Exposure Group[1], Females, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages

Cancer Site	Exposure Group	Number of Cases	S.I.R.	P-value trend	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers				0.087		
	Group 1 (0.90-1.10 mSv/y)	75	0.87			(0.68 - 1.09)
	Group 2 (1.16-1.17 mSv/y)	64	0.95			(0.73 - 1.21)
	Group 3 (1.27-1.46 mSv/y)	153	1.09			(0.93 - 1.28)
Lip				NA		
	Group 1 (0.90-1.10 mSv/y)	<5	<1.00			
	Group 2 (1.16-1.17 mSv/y)	<5	<1.00			
	Group 3 (1.27-1.46 mSv/y)	<5	<1.00			
Colon and rectum				0.616		
	Group 1 (0.90-1.10 mSv/y)	16	1.31			(0.75 - 2.12)
	Group 2 (1.16-1.17 mSv/y)	10	1.10			(0.53 - 2.01)
	Group 3 (1.27-1.46 mSv/y)	32	1.48		+	(1.01 - 2.09)
Lung				0.003		
	Group 1 (0.90-1.10 mSv/y)	5	0.50			(0.16 - 1.14)
	Group 2 (1.16-1.17 mSv/y)	9	1.18			(0.54 - 2.23)
	Group 3 (1.27-1.46 mSv/y)	28	1.86		++	(1.24 - 2.70)

[1] Based on population weighted block values for 1967-1976 from Senes (1995) Report for 1996 Enumeration Areas

Legend

Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - ASIR not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

Table 5c. Standardized Incidence Ratios By Radiation Exposure Group[1], Males and Females, 1986 to 1996 for Port Hope, Selected Cancer Sites, All Ages

Cancer Site	Exposure Group	Number of Cases	S.I.R.	P-value trend	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers				0.017		
	Group 1 (0.90-1.10 mSv/y)	143	0.79		--	(0.67 - 0.94)
	Group 2 (1.16-1.17 mSv/y)	134	0.92			(0.77 - 1.09)
	Group 3 (1.27-1.46 mSv/y)	268	1.02			(0.90 - 1.15)
Lip				0.134		
	Group 1 (0.90-1.10 mSv/y)	<5	<1.00			
	Group 2 (1.16-1.17 mSv/y)	<5	<1.00			
	Group 3 (1.27-1.46 mSv/y)	5	3.31		+	(1.07 - 7.60)
Colon and rectum				0.462		
	Group 1 (0.90-1.10 mSv/y)	34	1.36			(0.94 - 1.90)
	Group 2 (1.16-1.17 mSv/y)	22	1.10			(0.69 - 1.67)
	Group 3 (1.27-1.46 mSv/y)	44	1.14			(0.83 - 1.53)
Lung				<0.001		
	Group 1 (0.90-1.10 mSv/y)	15	0.55		-	(0.31 - 0.91)
	Group 2 (1.16-1.17 mSv/y)	22	0.98			(0.62 - 1.49)
	Group 3 (1.27-1.46 mSv/y)	55	1.48		++	(1.11 - 1.92)

[1] Based on population weighted block values for 1967-1976 from Senes (1995) Report for 1996 Enumeration Areas

Legend

Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - ASIR not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

Table 6. Cancer Incidence 1986 to 1996 for Port Hope, Southern EA Group
Selected Cancer Sites, All Ages

Cancer Site	Gender	Number of Cases	S.I.R.	S.I.R. Flag	95% Confidence Interval Lower - Upper
All cancers					
	Men	48	0.90		(0.66 - 1.19)
	Women	60	1.06		(0.81 - 1.36)
	Combined	108	0.98		(0.81 - 1.19)
Lip					
	Men	<5	>1.00	++	
	Women	<5	<1.00		
	Combined	<5	>1.00	++	
Colon and rectum					
	Men	<5	<1.00	-	
	Women	17	1.87	+	(1.09 - 2.99)
	Combined	NA	>1.00		
Lung					
	Men	8	0.83		(0.36 - 1.62)
	Women	9	1.45		(0.67 - 2.74)
	Combined	17	1.08		(0.63 - 1.72)
Kidney					
	Men	<5	>1.00		
	Women	<5	>1.00		
	Combined	8	2.87	+	(1.24 - 5.61)

Legend

Standardized incidence ratio (S.I.R.) Flag

++ Significantly high, p-value < 0.01

\+ Significantly high, p-value < 0.05

Blank - ASIR not significant

\- Significantly low, p-value < 0.05

-- Significantly low, p-value < 0.01

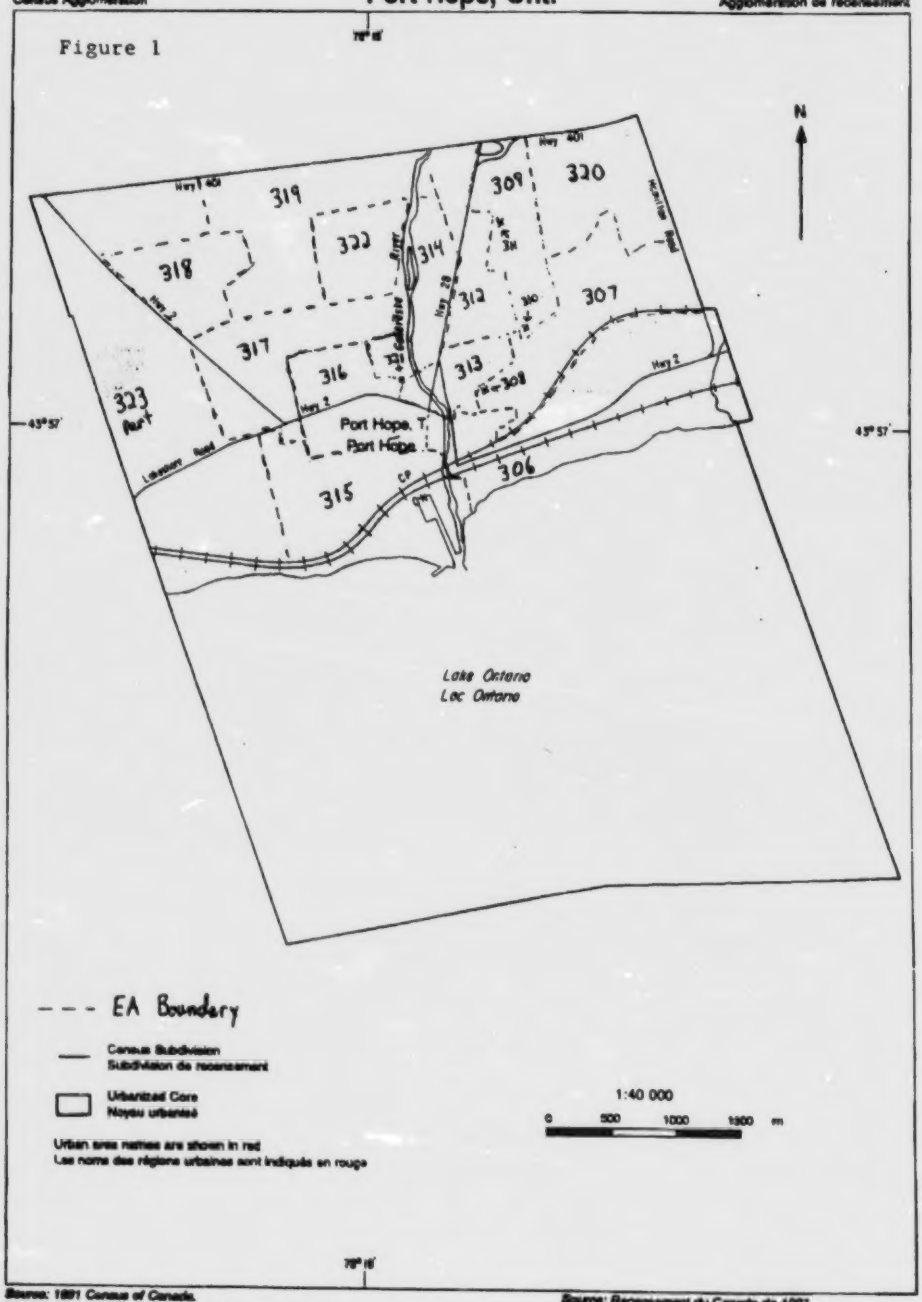
NA indicates total suppressed because a component is less than 5

Census Agglomeration

Port Hope, Ont.

Agglomération de recensement

Figure 1



Source: 1991 Census of Canada.
Produced by the Geography Division, Statistics Canada.

Source: Recensement du Canada de 1991.
Préparé par la Division de la géographie, Statistique Canada.

Appendix A

Table A1. 1996 Populations by Geographic Codes for Port Hope and Other Study Areas

Location	1996 SGC	1995 MOH	1996 Population
Port Hope CA	14025	2333	11700
Cobourg CA	14021	2332	16035
Lindsay CA			21940
Lindsay T	16009	3501	
Oops TP	16006	3515	
Belleville CA			93480
Belleville C	12008	1101	
Thurlow TP	12006	1126	
Sidney TP	12011	1125	
Frankford VL	12014	1106	
Trenton C	12012	1102	
Murray TP	14001	2343	
Ameliasburgh TP	13028	3104	
Orillia CA			38110
Orillia C	43052	3302	
Severn TP	43015	3347	

C= city , CA= census agglomeration, T=town, TP=township, VL=village

Table A2. Percentage of Population with Education Less than Grade 9, Ages 15 and over, 1991 Census

Area	Male %	Female %	Total %[1]
Ontario	11.0%	12.0%	11.5%
Port Hope CA (same as Town)	9.8%	8.2%	8.9%
Cobourg CA (same as Town)	9.3%	10.2%	9.8%
Lindsay CA	11.5%	10.4%	11.0%
Belleville CA	9.1%	9.6%	9.4%
Orillia CA	12.3%	12.2%	12.2%

[1]Distribution of Ontario CAs 25-50-75th percentile for total population is 10.0-12.1-14.3 percent with a minium of 6.7 and a maximum of 23.9 percent. Only components within Ontario are included.

Table A3. Percentage of Low Income Families[1] in Population, 1991 Census

Area	Percent
Ontario	10.9%
Port Hope CA (same as T)	7.8%
Cobourg CA (same as T)	8.1%
Lindsay CA	8.2%
Belleville CA	9.6%
Orillia CA	9.0%

[1]Distribution of Ontario CAs 25-50-75th percentile is 8.8-10.5-12.0 percent with a minium of 6.5 and a maximum of 19.3 percent. Only components within Ontario are included.

TABLE A4A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	437.3	275	0.93		(0.82 -	1.05)	3	365.8	314	1.07		(0.95 -	1.19)
20	CANCER OF THE LIP	2	9.4	6	2.35		(0.86 -	5.06)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	"	-	-	<1.00		-		"	-	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	"	-	-	>1.00		-		"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00	*	-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-		1	7.3	5	4.17	*	(1.35 -	9.58)
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-		"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	"	-	-	<1.00		-		"	-	-	>1.00		-	
32	CANCER OF THE STOMACH	3	17.9	11	1.23		(0.62 -	2.19)	3	6.3	7	1.14		(0.46 -	2.32)
33	CANCER OF THE SMALL INTESTINE	"	-	-	>1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	67.0	42	1.03		(0.75 -	1.40)	1	69.3	61	1.42	*	(1.09 -	1.82)
236	CANCER OF THE LIVER	"	-	-	<1.00		-		"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-		3	4.1	5	1.72		(0.55 -	3.94)
40	CANCER OF THE PANCREAS	3	15.7	10	1.49		(0.71 -	2.72)	3	5.1	6	0.74		(0.27 -	1.59)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-		"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-		"	-	-	>1.00		-	
45	CANCER OF THE LARYNX	3	9.9	6	1.36		(0.50 -	2.92)	"	-	-	<1.00		-	
47	CANCER OF THE PLEURA	"	-	-	>1.00		-		"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	90.8	57	1.05		(0.80 -	1.36)	2	55.4	44	1.35		(0.98 -	1.81)
50	CANCER OF THE BONE	"	-	-	<1.00		-		"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	>1.00		-		"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	14.5	9	1.13		(0.52 -	2.13)	3	11.6	8	1.04		(0.45 -	2.03)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	95.5	76	0.97		(0.76 -	1.21)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		"	-	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	16.3	14	0.85		(0.47 -	1.43)
73	CANCER OF THE OVARY	"	-	-	1.00		-		4	5.8	5	0.43	*	(0.14 -	0.99)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	93.5	60	0.87		(0.67 -	1.12)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	"	-	-	<1.00		-		"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	20.8	13	0.76		(0.41 -	1.30)	"	-	-	<1.00		-	
245	CANCER OF THE KIDNEY	3	12.7	8	0.88		(0.38 -	1.72)	3	8.6	8	1.25		(0.54 -	2.45)

TABLE A4A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
82	CANCER OF THE EYE	"	-	-	>1.00		-		"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	11.0	7	1.31		(0.53 -	2.67)	3	9.9	8	1.61		(0.70 -	3.15)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-		"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	11.3	7	0.62		(0.25 -	1.27)	3	15.1	15	1.42		(0.79 -	2.33)
92	HODGKIN'S DISEASE	"	5.6	-	>1.00		-		"	-	-	>1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	12.3	8	0.70		(0.30 -	1.36)	3	11.6	10	0.92		(0.44 -	1.68)
95	MULTIPLE MYELOMA	"	3.1	-	<1.00		-		"	-	-	>1.00		-	
257	LEUKEMIA	3	14.5	9	0.92		(0.42 -	1.73)	3	8.1	9	1.05		(0.48 -	1.97)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A4B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	401.6	589	1.00		(0.92 -	1.08)
20	CANCER OF THE LIP	3	4.7	6	1.78		(0.65 -	3.82)
414	TONGUE, GUM, AND MOUTH	"	-	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3		NA	>1.00			
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	3.9	6	0.98		(0.36 -	2.10)
32	CANCER OF THE STOMACH	3	12.1	18	1.19		(0.71 -	1.88)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	2	68.1	103	1.23	*	(1.01 -	1.49)
236	CANCER OF THE LIVER	"	-	-	<1.00	*	-	
38	CANCER OF THE GALLBLADDER	3		NA	>1.00			
40	CANCER OF THE PANCREAS	3	10.4	16	1.08		(0.62 -	1.75)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3		NA	>1.00			
47	CANCER OF THE PLEURA	"	-	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	73.1	101	1.16		(0.95 -	1.41)
50	CANCER OF THE BONE	"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	13.0	17	1.09		(0.63 -	1.74)
64	CANCER OF THE BREAST	3	47.8	76	0.96		(0.76 -	1.20)
65	CANCER OF THE CERVIX UTERI	"	-	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	3	8.2	14	0.85		(0.47 -	1.43)
73	CANCER OF THE OVARY	4	2.9	5	0.43	*	(0.14 -	0.99)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	46.7	60	0.87		(0.67 -	1.12)
76	CANCER OF THE TESTIS	"	-	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-	
79	CANCER OF THE BLADDER	3		NA	<1.00			
245	CANCER OF THE KIDNEY	3	10.6	16	1.03		(0.59 -	1.67)

TABLE A4B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	10.4	15	1.45		(0.81 -	2.39)
86	CANCER OF THE THYROID	"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	13.2	22	1.01		(0.63 -	1.53)
92	HODGKIN'S DISEASE	3	4.0	5	1.33		(0.43 -	3.05)
94	NON-HODGKIN'S LYMPHOMA	3	11.9	18	0.80		(0.48 -	1.27)
95	MULTIPLE MYELOMA	3	3.4	6	0.76		(0.28 -	1.63)
257	LEUKEMIA	3	11.3	18	0.98		(0.58 -	1.54)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A5A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: COBOURG T/CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	481.9	442	1.02		(0.93 -	1.12)	3	346.7	433	0.99		(0.90 -	1.09)
20	CANCER OF THE LIP	"	-	-	<1.00		-		"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	3	8.9	8	1.37		(0.59 -	2.68)	3	5.3	6	1.55		(0.57 -	3.34)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	>1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	>1.00		-		"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-		"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	9.3	9	1.54		(0.70 -	2.90)	3	3.3	5	1.53		(0.49 -	3.51)
32	CANCER OF THE STOMACH	3	16.3	15	1.14		(0.64 -	1.88)	3	4.7	6	0.65		(0.24 -	1.39)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	62.9	57	0.95		(0.72 -	1.23)	3	40.2	53	0.82		(0.61 -	1.07)
236	CANCER OF THE LIVER	"	-	-	<1.00		-		"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-		3	4.5	7	1.59		(0.64 -	3.24)
40	CANCER OF THE PANCREAS	3	12.7	11	1.11		(0.56 -	1.98)	3	9.9	14	1.14		(0.62 -	1.91)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-		"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	>1.00		-		"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3	5.4	5	0.77		(0.25 -	1.77)	"	-	-	>1.00		-	
47	CANCER OF THE PLEURA	"	-	-	<1.00		-		"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	101.5	95	1.19		(0.96 -	1.45)	3	40.4	49	0.99		(0.73 -	1.31)
50	CANCER OF THE BONE	"	-	-	<1.00		-		"	-	-	>1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	>1.00		-		"	-	-	>1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	9.8	8	0.71		(0.31 -	1.39)	1	21.9	20	1.81	*	(1.11 -	2.79)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	95.7	117	1.00		(0.83 -	1.20)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		3	12.7	15	1.45		(0.81 -	2.39)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	13.7	17	0.69		(0.40 -	1.10)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	12.0	15	0.87		(0.49 -	1.44)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	92.3	88	0.86		(0.69 -	1.06)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	3	10.2	7	1.88		(0.76 -	3.84)	"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	32.7	31	1.24		(0.84 -	1.76)	3	8.9	12	1.19		(0.61 -	2.07)
245	CANCER OF THE KIDNEY	3	12.1	11	0.83		(0.41 -	1.48)	3	5.7	9	0.94		(0.43 -	1.78)

TABLE A5A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: COBOURG T/CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-		"	-	-	>1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	7.0	6	0.81		(0.30 -	1.74)	3	5.9	7	0.97		(0.39 -	1.98)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		3	6.2	5	0.70		(0.23 -	1.61)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-		"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	25.2	24	1.46		(0.94 -	2.17)	3	14.9	22	1.38		(0.87 -	2.09)
92	HODGKIN'S DISEASE	"	-	-	>1.00		-		"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	18.0	16	0.98		(0.56 -	1.58)	3	12.4	15	0.92		(0.52 -	1.52)
95	MULTIPLE MYELOMA	3	6.0	6	1.03		(0.38 -	2.22)	"	-	-	<1.00		-	
257	LEUKEMIA	3	14.2	12	0.86		(0.44 -	1.49)	3	8.0	11	0.87		(0.43 -	1.55)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A5B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: COBOURG T/CA, BASED ON POSTAL CODE
SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	414.3	875	1.01		(0.94 -	1.07)
20	CANCER OF THE LIP	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	3	7.1	14	1.44		(0.79 -	2.41)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	3	2.8	6	1.02		(0.37 -	2.19)
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	6.3	14	1.53		(0.84 -	2.57)
32	CANCER OF THE STOMACH	3	10.5	21	0.94		(0.58 -	1.43)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	51.6	110	0.88		(0.72 -	1.06)
236	CANCER OF THE LIVER	3	2.6	6	0.92		(0.34 -	1.98)
38	CANCER OF THE GALLBLADDER	3	3.2	9	1.29		(0.59 -	2.44)
40	CANCER OF THE PANCREAS	3	11.3	25	1.13		(0.73 -	1.67)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	>1.00		-	
45	CANCER OF THE LARYNX	3		NA	<1.00			
47	CANCER OF THE PLEURA	"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	70.9	144	1.11		(0.94 -	1.31)
50	CANCER OF THE BONE	"	-	-	>1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	3	4.4	8	1.54		(0.67 -	3.01)
52	MALIGNANT MELANOMA OF SKIN	3	15.9	28	1.26		(0.84 -	1.82)
64	CANCER OF THE BREAST	3	47.9	117	1.00		(0.82 -	1.19)
65	CANCER OF THE CERVIX UTERI	3	6.3	15	1.45		(0.81 -	2.39)
70	UTERUS EXCLUDING CERVIX	3	6.8	17	0.69		(0.40 -	1.10)
73	CANCER OF THE OVARY	3	6.0	15	0.87		(0.49 -	1.44)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	46.2	88	0.86		(0.69 -	1.06)
76	CANCER OF THE TESTIS	3	5.1	7	1.88		(0.76 -	3.84)
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-	
79	CANCER OF THE BLADDER	3	20.8	43	1.22		(0.89 -	1.65)
245	CANCER OF THE KIDNEY	3	8.9	20	0.88		(0.54 -	1.35)

TABLE A5B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: COBOURG T/CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	>1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	6.5	13	0.89		(0.47 -	1.51)
86	CANCER OF THE THYROID	3		NA	<1.00			
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	2	20.0	46	1.42	*	(1.04 -	1.90)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	15.2	31	0.95		(0.65 -	1.35)
95	MULTIPLE MYELOMA	3		NA	<1.00			
257	LEUKEMIA	3	11.1	23	0.86		(0.55 -	1.29)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A6A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: LINDSAY CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	456.7	621	0.97		(0.89 -	1.05)	3	346.8	610	1.00		(0.92 -	1.08)
20	CANCER OF THE LIP	3	3.5	5	0.90		(0.29 -	2.07)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	3	9.5	11	1.32		(0.66 -	2.35)	"	-	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	3	4.4	5	2.13		(0.69 -	4.90)	"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	>1.00		-		"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3	7.0	8	1.38		(0.60 -	2.70)	"	-	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-		"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	3	8.7	11	1.27		(0.64 -	2.27)	3	2.9	6	1.28		(0.47 -	2.74)
32	CANCER OF THE STOMACH	3	9.5	13	0.66		(0.35 -	1.13)	3	2.5	5	0.37	*	(0.12 -	0.86)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	55.7	79	0.89		(0.70 -	1.10)	3	46.0	90	0.97		(0.78 -	1.19)
236	CANCER OF THE LIVER	"	-	-	<1.00	*	-		"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	>1.00		-		3	4.6	11	1.74		(0.87 -	3.10)
40	CANCER OF THE PANCREAS	3	10.3	13	0.88		(0.47 -	1.50)	3	6.9	14	0.79		(0.43 -	1.33)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-		"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-		"	-	-	>1.00		-	
45	CANCER OF THE LARYNX	3	7.1	9	0.97		(0.44 -	1.82)	"	-	-	<1.00		-	
47	CANCER OF THE PLEURA	"	-	-	<1.00		-		"	-	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	81.1	111	0.94		(0.77 -	1.13)	3	42.1	75	1.09		(0.86 -	1.36)
50	CANCER OF THE BONE	"	-	-	<1.00		-		"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	<1.00		-		"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	13.3	17	1.06		(0.62 -	1.70)	4	4.7	9	0.60		(0.27 -	1.13)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	90.2	145	0.90		(0.76 -	1.06)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		3	16.5	21	1.51		(0.94 -	2.31)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	26.2	47	1.38	*	(1.01 -	1.83)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	10.2	18	0.76		(0.45 -	1.20)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		3	3.4	8	1.45		(0.63 -	2.84)
75	CANCER OF THE PROSTATE	3	102.2	148	0.95		(0.80 -	1.11)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	3	6.7	6	1.21		(0.45 -	2.61)	"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	23.1	32	0.85		(0.58 -	1.19)	3	8.2	14	0.97		(0.53 -	1.62)
245	CANCER OF THE KIDNEY	3	17.4	24	1.24		(0.80 -	1.85)	3	9.1	15	1.13		(0.63 -	1.85)

TABLE A6A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: LINDSAY CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-		"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	10.7	13	1.24		(0.66 -	2.11)	3	7.6	12	1.20		(0.62 -	2.09)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		3	9.3	12	1.26		(0.65 -	2.19)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-		"	-	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	22.5	32	1.28		(0.87 -	1.80)	3	13.6	31	1.35		(0.92 -	1.91)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-		"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	17.5	24	1.01		(0.65 -	1.51)	3	13.9	24	1.06		(0.68 -	1.57)
95	MULTIPLE MYELOMA	3	5.6	8	0.91		(0.39 -	1.78)	3	5.2	12	1.39		(0.72 -	2.43)
257	LEUKEMIA	3	21.2	26	1.24		(0.81 -	1.82)	3	11.0	19	1.05		(0.63 -	1.64)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A6B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: LINDSAY CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	401.7	1231	0.98		(0.93 -	1.04)
20	CANCER OF THE LIP	3		NA	<1.00			
414	TONGUE, GUM, AND MOUTH	3		NA	<1.00			
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	2		NA	>1.00	*		
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3		NA	>1.00			
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	3	5.8	17	1.28		(0.74 -	2.04)
32	CANCER OF THE STOMACH	4	6.0	18	0.55	**	(0.32 -	0.86)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	50.9	169	0.93		(0.79 -	1.08)
236	CANCER OF THE LIVER	"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	3	3.5	15	1.47		(0.83 -	2.42)
40	CANCER OF THE PANCREAS	3	8.6	27	0.83		(0.55 -	1.21)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3		10	<1.00			
47	CANCER OF THE PLEURA	"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	61.6	186	0.99		(0.86 -	1.15)
50	CANCER OF THE BONE	"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	9.0	26	0.84		(0.55 -	1.23)
64	CANCER OF THE BREAST	3	45.1	145	0.89		(0.75 -	1.05)
65	CANCER OF THE CERVIX UTERI	3	8.3	21	1.51		(0.94 -	2.31)
70	UTERUS EXCLUDING CERVIX	3	13.1	47	1.38	*	(1.01 -	1.83)
73	CANCER OF THE OVARY	3	5.1	18	0.76		(0.45 -	1.20)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	3	1.7	8	1.45		(0.63 -	2.84)
75	CANCER OF THE PROSTATE	3	51.1	148	0.95		(0.80 -	1.11)
76	CANCER OF THE TESTIS	3	3.4	6	1.21		(0.45 -	2.61)
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-	
79	CANCER OF THE BLADDER	3	15.7	46	0.88		(0.64 -	1.17)
245	CANCER OF THE KIDNEY	3	13.2	39	1.20		(0.85 -	1.63)

TABLE A6B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: LINDSAY CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	9.1	25	1.22		(0.79 -	1.80)
86	CANCER OF THE THYROID	3		NA	>1.00			
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	18.1	63	1.31	*	(1.01 -	1.67)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	15.7	48	1.03		(0.76 -	1.37)
95	MULTIPLE MYELOMA	3	5.4	20	1.15		(0.70 -	1.78)
257	LEUKEMIA	3	16.1	45	1.15		(0.84 -	1.54)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A7A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: BELLEVILLE CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	464.2	2337	0.99		(0.95 -	1.03)	3	363.2	2295	1.05	*	(1.01 -	1.09)
20	CANCER OF THE LIP	2	6.1	30	1.48		(1.00 -	2.11)	3	0.9	6	1.05		(0.38 -	2.26)
414	TONGUE, GUM, AND MOUTH	3	4.4	23	0.68		(0.43 -	1.01)	3	3.4	23	1.21		(0.77 -	1.81)
22	CANCER OF THE SALIVARY GLAND	3	1.3	6	0.96		(0.35 -	2.06)	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	3	2.4	12	1.22		(0.63 -	2.12)	"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		1	1.3	7	2.95	*	(1.19 -	6.03)
26	CANCER OF THE HYPOPHARYNX	3	0.9	5	0.65		(0.21 -	1.49)	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3	4.1	21	0.87		(0.54 -	1.32)	3	2.1	12	1.28		(0.66 -	2.24)
233	OTHER & ILL-DEFINED SITES	3	0.9	5	1.29		(0.42 -	2.96)	"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	3	7.2	37	1.14		(0.80 -	1.57)	3	2.3	16	1.06		(0.61 -	1.72)
32	CANCER OF THE STOMACH	3	14.6	72	1.01		(0.79 -	1.28)	3	4.7	33	0.77		(0.53 -	1.08)
33	CANCER OF THE SMALL INTESTINE	3	1.0	5	0.69		(0.22 -	1.59)	2	2.0	12	1.97	*	(1.02 -	3.44)
259	CANCER OF THE COLON AND RECTUM	3	65.1	329	1.01		(0.90 -	1.13)	3	48.7	325	1.07		(0.96 -	1.19)
236	CANCER OF THE LIVER	3	2.9	15	0.65		(0.36 -	1.07)	3	1.2	8	0.70		(0.30 -	1.37)
38	CANCER OF THE GALLBLADDER	3	2.8	14	1.02		(0.56 -	1.71)	3	3.4	24	1.18		(0.76 -	1.76)
40	CANCER OF THE PANCREAS	3	10.8	53	0.99		(0.74 -	1.29)	3	10.1	69	1.23		(0.95 -	1.55)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-		"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	3	1.4	7	1.43		(0.57 -	2.91)	"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3	9.3	50	1.34		(1.00 -	1.77)	3	1.2	8	1.02		(0.44 -	1.99)
47	CANCER OF THE PLEURA	3	1.1	6	0.95		(0.35 -	2.04)	"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-		"	-	-	>1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	93.9	483	1.09		(1.00 -	1.20)	1	50.3	320	1.31	**	(1.17 -	1.46)
50	CANCER OF THE BONE	"	-	-	<1.00		-		3	1.2	6	1.14		(0.42 -	2.46)
239	CANCER OF THE CONNECTIVE TISSUE	3	3.0	15	0.94		(0.53 -	1.55)	3	2.5	14	1.10		(0.60 -	1.85)
52	MALIGNANT MELANOMA OF SKIN	3	13.8	68	1.03		(0.80 -	1.31)	3	10.7	63	1.04		(0.80 -	1.33)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	103.8	637	1.05		(0.97 -	1.14)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		4	7.8	41	0.70	*	(0.50 -	0.95)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	17.7	114	0.91		(0.75 -	1.09)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	15.1	95	1.07		(0.87 -	1.31)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		3	2.2	15	0.81		(0.45 -	1.33)
75	CANCER OF THE PROSTATE	5	86.6	430	0.80	**	(0.73 -	0.88)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	3	4.5	21	0.86		(0.53 -	1.31)	"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	27.0	135	1.01		(0.85 -	1.19)	3	7.8	54	1.15		(0.87 -	1.50)
245	CANCER OF THE KIDNEY	3	15.6	81	1.08		(0.86 -	1.34)	3	7.6	47	0.98		(0.72 -	1.31)

TABLE A7A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: BELLEVILLE CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
82	CANCER OF THE EYE	"	-	-	<1.00		-		"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	7.9	40	0.90		(0.64 -	1.22)	3	6.7	38	0.99		(0.70 -	1.36)
86	CANCER OF THE THYROID	3	1.4	7	0.52		(0.21 -	1.06)	4	4.9	27	0.65	*	(0.43 -	0.94)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-		"	-	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	4	13.2	64	0.74	*	(0.57 -	0.94)	4	7.8	55	0.76	*	(0.57 -	0.99)
92	HODGKIN'S DISEASE	3	3.0	15	0.88		(0.49 -	1.45)	4	1.2	6	0.42	*	(0.16 -	0.91)
94	NON-HODGKIN'S LYMPHOMA	3	21.2	109	1.16		(0.95 -	1.40)	3	14.9	91	1.12		(0.91 -	1.38)
95	MULTIPLE MYELOMA	3	7.2	36	1.16		(0.81 -	1.60)	3	5.5	37	1.31		(0.93 -	1.81)
257	LEUKEMIA	1	23.0	110	1.42	**	(1.17 -	1.72)	3	11.0	72	1.18		(0.92 -	1.48)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A7B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: BELLEVILLE CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	413.7	4632	1.02		(0.99 -	1.05)
20	CANCER OF THE LIP	2	3.5	36	1.38		(0.97 -	1.92)
414	TONGUE, GUM, AND MOUTH	3	3.9	46	0.87		(0.63 -	1.16)
22	CANCER OF THE SALIVARY GLAND	3		NA	<1.00			
24	CANCER OF THE OROPHARYNX	3		NA	>1.00			
25	CANCER OF THE NASOPHARYNX	3		NA	>1.00			
26	CANCER OF THE HYPOPHARYNX	3		NA	<1.00			
28	CANCER OF THE PHARYNX	3	3.1	33	0.98		(0.68 -	1.38)
233	OTHER & ILL-DEFINED SITES	3		NA	<1.00			
31	CANCER OF THE ESOPHAGUS	3	4.7	53	1.12		(0.84 -	1.46)
32	CANCER OF THE STOMACH	3	9.7	105	0.92		(0.75 -	1.12)
33	CANCER OF THE SMALL INTESTINE	3	1.5	17	1.28		(0.75 -	2.05)
259	CANCER OF THE COLON AND RECTUM	3	56.9	654	1.04		(0.96 -	1.12)
236	CANCER OF THE LIVER	3	2.1	23	0.67	*	(0.42 -	1.00)
38	CANCER OF THE GALLBLADDER	3	3.1	38	1.12		(0.79 -	1.53)
40	CANCER OF THE PANCREAS	3	10.5	122	1.11		(0.92 -	1.32)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	3		NA	>1.00			
45	CANCER OF THE LARYNX	3	5.3	58	1.28		(0.98 -	1.66)
47	CANCER OF THE PLEURA	3	0.6	6	0.77		(0.28 -	1.66)
238	CANCER OF THE THYMUS,HEART & MEDIAST	3	0.5	6	0.99		(0.36 -	2.12)
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	1	72.1	803	1.17	**	(1.09 -	1.25)
50	CANCER OF THE BONE	3		NA	<1.00			
239	CANCER OF THE CONNECTIVE TISSUE	3	2.7	29	1.01		(0.68 -	1.45)
52	MALIGNANT MELANOMA OF SKIN	3	12.2	131	1.04		(0.87 -	1.23)
64	CANCER OF THE BREAST	3	52.1	639	1.05		(0.97 -	1.13)
65	CANCER OF THE CERVIX UTERI	4	3.9	41	0.70	*	(0.50 -	0.95)
70	UTERUS EXCLUDING CERVIX	3	8.9	114	0.91		(0.75 -	1.09)
73	CANCER OF THE OVARY	3	7.6	95	1.07		(0.87 -	1.31)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	3	1.1	15	0.81		(0.45 -	1.33)
75	CANCER OF THE PROSTATE	5	43.3	430	0.80	**	(0.73 -	0.88)
76	CANCER OF THE TESTIS	3	2.2	21	0.86		(0.53 -	1.31)
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-	
79	CANCER OF THE BLADDER	3	17.4	189	1.04		(0.90 -	1.20)
245	CANCER OF THE KIDNEY	3	11.6	128	1.04		(0.87 -	1.24)

TABLE A7B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: BELLEVILLE CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	3	0.6	6	0.55		(0.20 -	1.18)
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	7.3	78	0.94		(0.75 -	1.18)
86	CANCER OF THE THYROID	5	3.2	34	0.62	**	(0.43 -	0.86)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	5	10.5	119	0.75	**	(0.62 -	0.90)
92	HODGKIN'S DISEASE	3	2.1	21	0.67		(0.42 -	1.03)
94	NON-HODGKIN'S LYMPHOMA	3	18.0	200	1.14		(0.99 -	1.31)
95	MULTIPLE MYELOMA	3	6.4	73	1.23		(0.97 -	1.55)
257	LEUKEMIA	1	17.0	182	1.32	**	(1.13 -	1.52)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A8A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: ORILLIA CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
19	ALL CANCER SITES	3	490.5	1081	1.04		(0.98 -	1.10)	3	370.2	992	1.05		(0.99 -	1.12)
20	CANCER OF THE LIP	1	7.8	17	1.91	*	(1.11 -	3.05)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	3	4.5	10	0.70		(0.34 -	1.29)	3	4.4	13	1.57		(0.84 -	2.68)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	3	3.2	7	0.70		(0.28 -	1.42)	"	-	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-		"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	5.6	13	0.92		(0.49 -	1.57)	3	2.5	9	1.32		(0.60 -	2.48)
32	CANCER OF THE STOMACH	3	11.4	25	0.79		(0.51 -	1.17)	3	5.3	14	0.72		(0.40 -	1.21)
33	CANCER OF THE SMALL INTESTINE	3	2.7	6	1.95		(0.71 -	4.18)	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	2	75.2	170	1.18	*	(1.01 -	1.37)	3	52.6	153	1.12		(0.95 -	1.31)
236	CANCER OF THE LIVER	3	3.0	6	0.60		(0.22 -	1.29)	"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	3	2.4	5	0.81		(0.26 -	1.87)	3	2.9	8	0.87		(0.38 -	1.70)
40	CANCER OF THE PANCREAS	3	12.3	27	1.14		(0.75 -	1.65)	3	8.3	25	0.97		(0.63 -	1.44)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-		"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-		"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3	9.5	21	1.33		(0.82 -	2.03)	3	2.1	6	1.79		(0.66 -	3.85)
47	CANCER OF THE PLEURA	"	-	-	>1.00		-		"	-	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	1.0	-	>1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	95.5	214	1.10		(0.96 -	1.26)	3	43.6	120	1.12		(0.93 -	1.34)
50	CANCER OF THE BONE	"	-	-	<1.00		-		"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	3	5.3	10	1.51		(0.72 -	2.76)	"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	14.0	28	1.03		(0.68 -	1.49)	3	10.4	23	0.94		(0.60 -	1.41)
64	CANCER OF THE BREAST	"	-	-	>1.00		-		3	101.8	270	1.06		(0.94 -	1.20)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		1	17.2	38	1.64	**	(1.16 -	2.25)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	23.8	62	1.15		(0.89 -	1.48)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	13.0	33	0.88		(0.61 -	1.24)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		3	2.7	8	0.98		(0.42 -	1.91)
75	CANCER OF THE PROSTATE	3	107.1	242	0.99		(0.87 -	1.12)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	3	6.8	12	1.34		(0.69 -	2.33)	"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	21.9	47	0.78		(0.58 -	1.04)	3	6.3	20	0.94		(0.58 -	1.46)
245	CANCER OF THE KIDNEY	3	13.3	30	0.93		(0.63 -	1.33)	3	6.7	19	0.92		(0.56 -	1.44)

TABLE A8A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: ORILLIA CA, BASED ON POSTAL CODE

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	"	-	-	>1.00		-		"	-	-	>1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	7.8	16	0.88		(0.51 -	1.43)	3	5.8	13	0.82		(0.44 -	1.39)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		3	9.0	18	1.11		(0.66 -	1.76)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-		"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	18.1	40	1.02		(0.73 -	1.39)	3	9.6	29	0.88		(0.59 -	1.26)
92	HODGKIN'S DISEASE	3	2.7	5	0.78		(0.25 -	1.79)	"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	20.0	44	1.11		(0.81 -	1.49)	3	12.2	30	0.86		(0.58 -	1.22)
95	MULTIPLE MYELOMA	3	7.6	17	1.22		(0.71 -	1.95)	3	3.5	11	0.87		(0.43 -	1.54)
257	LEUKEMIA	3	15.4	32	0.95		(0.65 -	1.35)	3	11.3	31	1.15		(0.78 -	1.64)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A8B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: ORILLIA CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	2	430.4	2073	1.05	*	(1.00 -	1.09)
20	CANCER OF THE LIP	2		NA	>1.00			
414	TONGUE, GUM, AND MOUTH	3	4.5	23	1.02		(0.65 -	1.53)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3		NA	<1.00			
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	4.1	22	1.05		(0.66 -	1.59)
32	CANCER OF THE STOMACH	3	8.3	39	0.77		(0.55 -	1.05)
33	CANCER OF THE SMALL INTESTINE	3		NA	>1.00			
259	CANCER OF THE COLON AND RECTUM	1	63.9	323	1.15	*	(1.03 -	1.28)
236	CANCER OF THE LIVER	3		NA	<1.00			
38	CANCER OF THE GALLBLADDER	3	2.6	13	0.85		(0.45 -	1.44)
40	CANCER OF THE PANCREAS	3	10.3	52	1.05		(0.79 -	1.38)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3	5.8	27	1.41		(0.93 -	2.05)
47	CANCER OF THE PLEURA	3	1.0	5	1.51		(0.49 -	3.46)
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	2	69.6	334	1.11		(1.00 -	1.24)
50	CANCER OF THE BONE	"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	3		NA	>1.00			
52	MALIGNANT MELANOMA OF SKIN	3	12.2	51	0.99		(0.73 -	1.29)
64	CANCER OF THE BREAST	3	51.6	273	1.06		(0.94 -	1.20)
65	CANCER OF THE CERVIX UTERI	1	8.6	38	1.64	**	(1.16 -	2.25)
70	UTERUS EXCLUDING CERVIX	3	11.9	62	1.15		(0.89 -	1.48)
73	CANCER OF THE OVARY	3	6.5	33	0.88		(0.61 -	1.24)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	3	1.3	8	0.98		(0.42 -	1.91)
75	CANCER OF THE PROSTATE	3	53.5	242	0.99		(0.87 -	1.12)
76	CANCER OF THE TESTIS	3	3.4	12	1.34		(0.69 -	2.33)
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-	
79	CANCER OF THE BLADDER	3	14.1	67	0.83		(0.64 -	1.05)
245	CANCER OF THE KIDNEY	3	10.0	49	0.93		(0.69 -	1.23)

TABLE A8B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: ORILLIA CA, BASED ON POSTAL CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	3	1.8	8	1.74		(0.75 -	3.40)
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	6.8	29	0.85		(0.57 -	1.23)
86	CANCER OF THE THYROID	3		NA	<1.00			
247	CANCER OF OTHER ENDOCRINE GLANDS	3	1.2	5	1.79		(0.58 -	4.11)
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	13.9	69	0.96		(0.75 -	1.21)
92	HODGKIN'S DISEASE	3		NA	<1.00			
94	NON-HODGKIN'S LYMPHOMA	3	16.1	74	0.99		(0.78 -	1.24)
95	MULTIPLE MYELOMA	3	5.6	28	1.05		(0.70 -	1.52)
257	LEUKEMIA	3	13.3	63	1.04		(0.80 -	1.33)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON USING POSTAL CODE TO ASSIGN RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A9A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1985, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	413.8	279	0.99		(0.88 -	1.11)	3	329.9	307	1.01		(0.90 -	1.13)
20	CANCER OF THE LIP	3	7.1	5	1.12		(0.36 -	2.56)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	"	-	-	<1.00		-		"	-	-	>1.00		-	
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	>1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	>1.00		-		"	-	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-		"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	1	16.0	10	2.41	*	(1.16 -	4.41)	"	-	-	>1.00		-	
32	CANCER OF THE STOMACH	3	10.4	7	0.56		(0.23 -	1.15)	3	6.4	7	0.73		(0.30 -	1.50)
33	CANCER OF THE SMALL INTESTINE	"	-	-	>1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	55.6	38	0.93		(0.66 -	1.28)	3	53.2	52	1.03		(0.77 -	1.35)
236	CANCER OF THE LIVER	"	-	-	<1.00		-		"	-	-	>1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-		"	-	-	<1.00		-	
40	CANCER OF THE PANCREAS	3	19.4	13	1.49		(0.79 -	2.53)	3	5.2	6	0.68		(0.25 -	1.46)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-		"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	1	7.6	5	5.61	**	(1.81 -	12.88)	"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
47	CANCER OF THE PLEURA	"	-	-	<1.00		-		"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	99.8	67	1.13		(0.88 -	1.44)	3	19.9	20	0.93		(0.57 -	1.44)
50	CANCER OF THE BONE	"	-	-	>1.00		-		"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	"	-	-	>1.00		-		"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	7.3	5	0.93		(0.30 -	2.13)	3	6.5	5	0.75		(0.24 -	1.71)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	101.7	90	1.17		(0.94 -	1.44)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		"	-	-	<1.00	*	-	
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	30.0	25	1.20		(0.78 -	1.77)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	12.3	12	0.92		(0.47 -	1.60)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	70.7	46	1.04		(0.76 -	1.38)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	"	-	-	<1.00		-		"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	27.8	19	0.93		(0.56 -	1.45)	3	12.6	11	1.25		(0.63 -	2.24)
245	CANCER OF THE KIDNEY	3	9.2	6	0.80		(0.29 -	1.72)	3	9.3	10	1.95		(0.94 -	3.57)

TABLE A9A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1985, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
82	CANCER OF THE EYE	"	-	-	<1.00		-		"	-	-	>1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	"	-	-	<1.00		-		3	9.9	9	1.73		(0.79 -	3.26)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-		"	-	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	20.1	14	1.37		(0.75 -	2.30)	3	15.0	14	1.32		(0.72 -	2.22)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-		"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	8.2	6	0.67		(0.25 -	1.45)	3	5.4	5	0.54		(0.17 -	1.24)
95	MULTIPLE MYELOMA	"	-	-	<1.00		-		3	4.6	5	1.22		(0.39 -	2.80)
257	LEUKEMIA	3	10.9	8	0.80		(0.34 -	1.56)	3	6.9	7	0.79		(0.32 -	1.62)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A9B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1985, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	371.9	586	1.00		(0.92 -	1.08)
20	CANCER OF THE LIP	3	3.6	5	0.95		(0.31 -	2.18)
414	TONGUE, GUM, AND MOUTH	3	4.1	7	0.97		(0.39 -	1.98)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	1		NA	>1.00	*		
32	CANCER OF THE STOMACH	3	8.4	14	0.64		(0.35 -	1.07)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	54.4	90	0.99		(0.79 -	1.21)
236	CANCER OF THE LIVER	"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-	
40	CANCER OF THE PANCREAS	3	12.3	19	1.08		(0.65 -	1.68)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	1	3.8	5	2.86		(0.92 -	6.56)
45	CANCER OF THE LARYNX	"	-	-	<1.00		-	
47	CANCER OF THE PLEURA	"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	59.8	87	1.08		(0.87 -	1.33)
50	CANCER OF THE BONE	"	-	-	>1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	3	3.5	5	1.14		(0.37 -	2.61)
52	MALIGNANT MELANOMA OF SKIN	3	6.9	10	0.83		(0.40 -	1.51)
64	CANCER OF THE BREAST	3	50.8	90	1.16		(0.93 -	1.42)
65	CANCER OF THE CERVIX UTERI	"	-	-	<1.00	*	-	
70	UTERUS EXCLUDING CERVIX	3	15.0	25	1.20		(0.78 -	1.77)
73	CANCER OF THE OVARY	3	6.2	12	0.92		(0.47 -	1.60)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	35.4	46	1.04		(0.76 -	1.38)
76	CANCER OF THE TESTIS	"	-	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-	
79	CANCER OF THE BLADDER	3	20.2	30	1.03		(0.69 -	1.46)
245	CANCER OF THE KIDNEY	3	9.3	16	1.27		(0.72 -	2.05)

TABLE A9B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1985, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3		NA	>1.00			
86	CANCER OF THE THYROID	"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	17.6	28	1.35		(0.90 -	1.95)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	6.8	11	0.61		(0.30 -	1.08)
95	MULTIPLE MYELOMA	3		NA	<1.00			
257	LEUKEMIA	3	8.9	15	0.79		(0.45 -	1.31)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A10A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
19	ALL CANCER SITES	3	474.5	297	1.01		(0.89 -	1.13)	3	379.7	325	1.11		(0.99 -	1.23)
20	CANCER OF THE LIP	1	11.2	7	2.75	*	(1.10 -	5.60)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	"	-	-	<1.00		-		"	-	-	>1.00		-	
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00	*	-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-		"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-		"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	"	-	-	<1.00		-		"	-	-	>1.00		-	
32	CANCER OF THE STOMACH	3	17.9	11	1.23		(0.62 -	2.19)	3	7.5	8	1.30		(0.56 -	2.54)
33	CANCER OF THE SMALL INTESTINE	"	-	-	>1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	70.4	44	1.08		(0.79 -	1.46)	3	58.8	54	1.26		(0.94 -	1.64)
236	CANCER OF THE LIVER	"	-	-	<1.00		-		"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-		3	4.1	5	1.72		(0.55 -	3.94)
40	CANCER OF THE PANCREAS	3	14.3	9	1.34		(0.61 -	2.53)	3	5.1	6	0.74		(0.27 -	1.59)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-		"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	>1.00		-		"	-	-	>1.00		-	
45	CANCER OF THE LARYNX	3	11.3	7	1.58		(0.64 -	3.23)	"	-	-	<1.00		-	
47	CANCER OF THE PLEURA	"	-	-	>1.00		-		"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	97.1	61	1.13		(0.86 -	1.45)	1	59.5	47	1.44	*	(1.06 -	1.91)
50	CANCER OF THE BONE	"	-	-	>1.00		-		"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	2	8.2	5	2.53		(0.82 -	5.81)	"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	15.9	10	1.26		(0.60 -	2.30)	3	13.3	9	1.17		(0.54 -	2.21)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	99.9	79	1.01		(0.80 -	1.25)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		3	7.3	5	0.69		(0.22 -	1.57)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	17.1	14	0.85		(0.47 -	1.43)
73	CANCER OF THE OVARY	"	-	-	1.00		-		4	5.8	5	0.43	*	(0.14 -	0.99)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	94.0	60	0.87		(0.67 -	1.12)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	"	-	-	<1.00		-		"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	22.5	14	0.82		(0.45 -	1.38)	"	-	-	<1.00		-	
245	CANCER OF THE KIDNEY	3	14.3	9	0.99		(0.45 -	1.86)	3	8.6	8	1.25		(0.54 -	2.45)

TABLE A10A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	"	-	-	>1.00		-		"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3	12.7	8	1.49		(0.65 -	2.92)	2	13.7	11	2.21	*	(1.11 -	3.94)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	<1.00		-		"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	14.3	9	0.80		(0.37 -	1.52)	3	16.6	16	1.51		(0.86 -	2.45)
92	HODGKIN'S DISEASE	"	-	-	>1.00		-		"	-	-	>1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	12.3	8	0.70		(0.30 -	1.36)	3	13.8	12	1.10		(0.57 -	1.92)
95	MULTIPLE MYELOMA	"	-	-	<1.00		-		"	-	-	>1.00		-	
257	LEUKEMIA	3	14.5	9	0.92		(0.42 -	1.73)	3	9.8	10	1.16		(0.56 -	2.13)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A10B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX : MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	427.1	622	1.06		(0.97 -	1.14)
20	CANCER OF THE LIP	2	5.6	7	2.07		(0.83 -	4.23)
414	TONGUE, GUM, AND MOUTH	3	5.2	7	1.06		(0.43 -	2.16)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3	3.7	5	1.24		(0.40 -	2.84)
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	3	3.9	6	0.98		(0.36 -	2.10)
32	CANCER OF THE STOMACH	3	12.7	19	1.26		(0.76 -	1.96)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	64.6	98	1.17		(0.95 -	1.43)
236	CANCER OF THE LIVER	"	-	-	<1.00	*	-	
38	CANCER OF THE GALLBLADDER	3		NA	>1.00			
40	CANCER OF THE PANCREAS	3	9.7	15	1.01		(0.57 -	1.66)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	"	-	-	>1.00		-	
45	CANCER OF THE LARYNX	3		NA	>1.00			
47	CANCER OF THE PLEURA	"	-	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	2	78.3	108	1.24	*	(1.02 -	1.50)
50	CANCER OF THE BONE	"	-	-	>1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	3		NA	>1.00			
52	MALIGNANT MELANOMA OF SKIN	3	14.6	19	1.21		(0.73 -	1.89)
64	CANCER OF THE BREAST	3	50.0	79	1.00		(0.79 -	1.24)
65	CANCER OF THE CERVIX UTERI	3	3.7	5	0.69		(0.22 -	1.57)
70	UTERUS EXCLUDING CERVIX	3	8.5	14	0.85		(0.47 -	1.43)
73	CANCER OF THE OVARY	4	2.9	5	0.43	*	(0.14 -	0.99)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	>1.00		-	
75	CANCER OF THE PROSTATE	3	47.0	60	0.87		(0.67 -	1.12)
76	CANCER OF THE TESTIS	"	-	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	>1.00		-	
79	CANCER OF THE BLADDER	3		NA	<1.00			
245	CANCER OF THE KIDNEY	3	11.5	17	1.10		(0.64 -	1.75)

TABLE A10B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	2	13.2	19	1.84	*	(1.11 -	2.87)
86	CANCER OF THE THYROID	3	4.0	5	0.74		(0.24 -	1.71)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	15.4	25	1.15		(0.74 -	1.69)
92	HODGKIN'S DISEASE	3	4.0	5	1.33		(0.43 -	3.05)
94	NON-HODGKIN'S LYMPHOMA	3	13.1	20	0.89		(0.55 -	1.38)
95	MULTIPLE MYELOMA	3	3.4	6	0.76		(0.28 -	1.63)
257	LEUKEMIA	3	12.1	19	1.03		(0.62 -	1.61)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A11A. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
		AGE GROUP : 00-85+							AGE GROUP : 00-85+						
19	ALL CANCER SITES	3	442.2	576	1.00		(0.92 -	1.08)	3	354.8	632	1.06		(0.98 -	1.14)
20	CANCER OF THE LIP	3	9.2	12	1.71		(0.88 -	2.97)	"	-	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	3	5.5	7	0.83		(0.33 -	1.69)	3	3.7	7	1.31		(0.53 -	2.67)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-		"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-		"	-	-	>1.00		-	
28	CANCER OF THE PHARYNX	"	-	-	<1.00		-		3	3.3	5	1.85		(0.60 -	4.24)
233	OTHER & ILL-DEFINED SITES	"	-	-	>1.00		-		"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	3		NA	>1.00				3	3.3	7	1.50		(0.60 -	3.06)
32	CANCER OF THE STOMACH	3	14.2	18	0.84		(0.50 -	1.33)	3	7.0	15	0.96		(0.54 -	1.57)
33	CANCER OF THE SMALL INTESTINE	"	-	-	>1.00		-		"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	63.0	82	1.01		(0.80 -	1.25)	3	56.0	106	1.13		(0.93 -	1.37)
236	CANCER OF THE LIVER	"	-	-	<1.00		-		"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	"	-	-	<1.00		-		3		NA	<1.00			
40	CANCER OF THE PANCREAS	3	16.9	22	1.42		(0.89 -	2.15)	3	5.2	12	0.71		(0.37 -	1.23)
41	CANCER OF THE PERITONEUM	"	-	-	<1.00		-		"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	1		NA	>1.00	**			"	-	-	<1.00		-	
45	CANCER OF THE LARYNX	3		NA	<1.00				"	-	-	<1.00		-	
47	CANCER OF THE PLEURA	"	-	-	>1.00		-		"	-	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	>1.00		-		"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	3	98.4	128	1.13		(0.94 -	1.34)	2	39.7	67	1.24		(0.96 -	1.57)
50	CANCER OF THE BONE	2	4.1	5	2.58		(0.84 -	5.93)	"	-	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	2		NA	>1.00				"	-	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	3	11.6	15	1.12		(0.63 -	1.85)	3	9.9	14	0.97		(0.53 -	1.63)
64	CANCER OF THE BREAST	"	-	-	<1.00		-		3	100.8	169	1.09		(0.93 -	1.26)
65	CANCER OF THE CERVIX UTERI	"	-	-	1.00		-		3	6.9	9	0.48	*	(0.22 -	0.91)
70	UTERUS EXCLUDING CERVIX	"	-	-	1.00		-		3	23.5	39	1.05		(0.75 -	1.43)
73	CANCER OF THE OVARY	"	-	-	1.00		-		3	9.1	17	0.69		(0.40 -	1.10)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	"	-	-	1.00		-		3	3.1	7	1.17		(0.47 -	2.39)
75	CANCER OF THE PROSTATE	3	82.3	106	0.94		(0.77 -	1.13)	"	-	-	1.00		-	
76	CANCER OF THE TESTIS	"	-	-	<1.00		-		"	-	-	1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-		"	-	-	1.00		-	
79	CANCER OF THE BLADDER	3	25.2	33	0.88		(0.61 -	1.24)	3		NA	<1.00			
245	CANCER OF THE KIDNEY	3	11.8	15	0.90		(0.51 -	1.48)	3	9.0	18	1.56		(0.93 -	2.47)

TABLE A11A. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

DISEASE CODE	CAUSE	MALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES (AGE GROUP : 00-85+) COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-		"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3		NA	<1.00				1	11.8	20	1.96	**	(1.20 -	3.03)
86	CANCER OF THE THYROID	"	-	-	<1.00		-		"	-	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-		"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	17.2	23	1.07		(0.68 -	1.61)	2	15.8	30	1.42		(0.96 -	2.02)
92	HODGKIN'S DISEASE	"	-	-	<1.00		-		"	-	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	3	10.2	14	0.69		(0.38 -	1.15)	3	9.6	17	0.84		(0.49 -	1.35)
95	MULTIPLE MYELOMA	"	-	-	<1.00		-		3		NA	>1.00			
257	LEUKEMIA	3	12.7	17	0.86		(0.50 -	1.37)	3	8.3	17	0.97		(0.57 -	1.56)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A11B. INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	3	399.5	1208	1.03		(0.97 -	1.09)
20	CANCER OF THE LIP	3	4.6	12	1.39		(0.72 -	2.42)
414	TONGUE, GUM, AND MOUTH	3	4.6	14	1.01		(0.56 -	1.70)
22	CANCER OF THE SALIVARY GLAND	"	-	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	"	-	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	"	-	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	"	-	-	<1.00		-	
28	CANCER OF THE PHARYNX	3		NA	<1.00			
233	OTHER & ILL-DEFINED SITES	"	-	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	2		NA	>1.00			
32	CANCER OF THE STOMACH	3	10.6	33	0.89		(0.61 -	1.25)
33	CANCER OF THE SMALL INTESTINE	"	-	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	3	59.5	188	1.07		(0.93 -	1.24)
236	CANCER OF THE LIVER	"	-	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	3		NA	<1.00			
40	CANCER OF THE PANCREAS	3	11.0	34	1.05		(0.73 -	1.46)
41	CANCER OF THE PERITONEUM	"	-	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	1		NA	>1.00	*		
45	CANCER OF THE LARYNX	3		NA	<1.00			
47	CANCER OF THE PLEURA	"	-	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	"	-	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	2	69.1	195	1.17	*	(1.01 -	1.34)
50	CANCER OF THE BONE	3	2.0	5	1.38		(0.45 -	3.18)
239	CANCER OF THE CONNECTIVE TISSUE	3		NA	>1.00			
52	MALIGNANT MELANOMA OF SKIN	3	10.8	29	1.04		(0.70 -	1.50)
64	CANCER OF THE BREAST	3	50.4	169	1.08		(0.92 -	1.25)
65	CANCER OF THE CERVIX UTERI	3	3.4	9	0.48	*	(0.22 -	0.91)
70	UTERUS EXCLUDING CERVIX	3	11.8	39	1.05		(0.75 -	1.43)
73	CANCER OF THE OVARY	3	4.5	17	0.69		(0.40 -	1.10)
243	CANCER OF OTHER FEMALE GENITAL ORGAN	3	1.5	7	1.17		(0.47 -	2.39)
75	CANCER OF THE PROSTATE	3	41.2	106	0.94		(0.77 -	1.13)
76	CANCER OF THE TESTIS	"	-	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	"	-	-	<1.00		-	
79	CANCER OF THE BLADDER	3		NA	<1.00			
245	CANCER OF THE KIDNEY	3	10.4	33	1.17		(0.81 -	1.65)

TABLE A11B. (CONT'D) INCIDENCE RATES PER 100,000 AND STANDARDIZED INCIDENCE RATIOS, 1971 TO 1996, STANDARD POPULATION CANADA 1991 -
AREA: PORT HOPE T/CA, BASED ON MOH CODE

SEX :MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	COLOUR CODE	A.S.I.R.	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	"	-	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	3		NA	>1.00			
86	CANCER OF THE THYROID	3	2.3	6	0.52		(0.19 -	1.12)
247	CANCER OF OTHER ENDOCRINE GLANDS	"	-	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	3	16.5	53	1.24		(0.93 -	1.63)
92	HODGKIN'S DISEASE	3	2.6	7	0.86		(0.35 -	1.76)
94	NON-HODGKIN'S LYMPHOMA	3	9.9	31	0.76		(0.52 -	1.09)
95	MULTIPLE MYELOMA	3		NA	<1.00			
257	LEUKEMIA	3	10.5	34	0.91		(0.63 -	1.27)

COLOUR CODES : 1 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.01
2 ASIR SIGNIFICANTLY HIGH P-VALUE < 0.05
3 ASIR NOT SIGN., " MEANS TEST NA FOR N<5
4,5 ASIR SIGNIFICANTLY LOW P-VALUE < 0.05, 0.01

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

NOTE: BASED ON MINISTRY OF HEALTH (MOH) RESIDENCE CODE
- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A12A. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 1

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	68	0.73	**	(0.57 -	0.92)	75	0.87		(0.68 -	1.09)
20	CANCER OF THE LIP	-	>1.00		-		-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-		-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-		-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-		-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-		-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-		-	<1.00		-	
28	CANCER OF THE PHARYNX	-	<1.00		-		-	<1.00		-	
233	OTHER & ILL-DEFINED SITES	-	<1.00		-		-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	<1.00		-		-	>1.00		-	
32	CANCER OF THE STOMACH	-	>1.00		-		-	>1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-		-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	18	1.41		(0.84 -	2.22)	16	1.31		(0.75 -	2.12)
236	CANCER OF THE LIVER	-	<1.00		-		-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	<1.00		-		-	>1.00		-	
40	CANCER OF THE PANCREAS	-	<1.00		-		-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-		-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-		-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-		-	<1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-		-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-		-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	10	0.58		(0.28 -	1.07)	5	0.50		(0.16 -	1.14)
50	CANCER OF THE BONE	-	<1.00		-		-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-		-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	-	>1.00		-		-	<1.00		-	
64	CANCER OF THE BREAST	-	<1.00		-		17	0.73		(0.42 -	1.16)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-		-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-		-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-		-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-		-	>1.00		-	
75	CANCER OF THE PROSTATE	13	0.59		(0.31 -	1.00)	-	<1.00		-	
76	CANCER OF THE TESTIS	-	<1.00		-		-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-		-	<1.00		-	
79	CANCER OF THE BLADDER	5	0.93		(0.30 -	2.14)	-	<1.00		-	
245	CANCER OF THE KIDNEY	-	<1.00		-		-	<1.00		-	

TABLE A12A. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 1

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-		-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	-	>1.00		-		-	>1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-		-	>1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-		-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-		-	<1.00		-	
92	HODGKIN'S DISEASE	-	<1.00		-		-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-		-	<1.00		-	
95	MULTIPLE MYELOMA	-	<1.00		-		-	>1.00		-	
257	LEUKEMIA	-	>1.00		-		-	>1.00		-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A12B. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 1

MALES AND FEMALES — AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
19	ALL CANCER SITES	143	0.79	**	(0.67 -	0.94)
20	CANCER OF THE LIP	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-	
28	CANCER OF THE PHARYNX	-	<1.00		-	
233	OTHER & ILL-DEFINED SITES	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	>1.00		-	
32	CANCER OF THE STOMACH	5	1.11		(0.36 -	2.55)
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	34	1.36		(0.94 -	1.90)
236	CANCER OF THE LIVER	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	>1.00		-	
40	CANCER OF THE PANCREAS	-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	15	0.55	*	(0.31 -	0.91)
50	CANCER OF THE BONE	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	5	1.05		(0.34 -	2.40)
64	CANCER OF THE BREAST	17	0.72		(0.42 -	1.15)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	>1.00		-	
75	CANCER OF THE PROSTATE	13	0.59		(0.31 -	1.00)
76	CANCER OF THE TESTIS	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-	
79	CANCER OF THE BLADDER	5	0.69		(0.22 -	1.59)
245	CANCER OF THE KIDNEY	-	<1.00		-	

TABLE A12B. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 1

MALES AND FEMALES — AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	5	1.55		(0.50 -	3.56)
86	CANCER OF THE THYROID	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-	
92	HODGKIN'S DISEASE	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-	
95	MULTIPLE MYELOMA	-	>1.00		-	
257	LEUKEMIA	7	1.26		(0.51 -	2.58)

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A13A. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 2

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
19	ALL CANCER SITES	70	0.89		(0.70	1.13)	64	0.95		(0.73	1.21)
20	CANCER OF THE LIP	-	<1.00		-		-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-		-	>1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-		-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-		-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-		-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-		-	<1.00		-	
28	CANCER OF THE PHARYNX	-	<1.00		-		-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	-	<1.00		-		-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	<1.00		-		-	<1.00		-	
32	CANCER OF THE STOMACH	-	>1.00		-		-	<1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-		-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	12	1.11		(0.57	1.93)	10	1.10		(0.53	2.01)
236	CANCER OF THE LIVER	-	<1.00		-		-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	<1.00		-		-	<1.00		-	
40	CANCER OF THE PANCREAS	-	>1.00		-		-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-		-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-		-	>1.00		-	
45	CANCER OF THE LARYNX	-	<1.00		-		-	<1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-		-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-		-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	13	0.88		(0.47	1.51)	9	1.18		(0.54	2.23)
50	CANCER OF THE BONE	-	<1.00		-		-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-		-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	-	>1.00		-		-	<1.00		-	
64	CANCER OF THE BREAST	-	<1.00		-		18	0.93		(0.55	1.48)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-		-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-		-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-		-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-		-	<1.00		-	
75	CANCER OF THE PROSTATE	18	1.00		(0.60	1.59)	-	<1.00		-	
76	CANCER OF THE TESTIS	-	<1.00		-		-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-		-	<1.00		-	
79	CANCER OF THE BLADDER	6	1.35		(0.50	2.90)	-	<1.00		-	
245	CANCER OF THE KIDNEY	-	<1.00		-		-	<1.00		-	

TABLE A13A. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 -AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 2

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-		-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	-	<1.00		-		-	>1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-		-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-		-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-		5	2.37		(0.77 -	5.45)
92	HODGKIN'S DISEASE	-	>1.00		-		-	>1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-		-	>1.00		-	
95	MULTIPLE MYELOMA	-	<1.00		-		-	<1.00		-	
257	LEUKEMIA	-	>1.00		-		-	>1.00		-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A13B. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 2

MALES AND FEMALES — AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	134	0.92		(0.77 -	1.09)
20	CANCER OF THE LIP	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	>1.00		-	
25	CANCER OF THE NASOPHARYNX	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-	
28	CANCER OF THE PHARYNX	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	<1.00		-	
32	CANCER OF THE STOMACH	-	>1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	22	1.10		(0.69 -	1.67)
236	CANCER OF THE LIVER	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	<1.00		-	
40	CANCER OF THE PANCREAS	-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	>1.00		-	
45	CANCER OF THE LARYNX	-	<1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	22	0.98		(0.62 -	1.49)
50	CANCER OF THE BONE	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	5	1.23		(0.40 -	2.83)
64	CANCER OF THE BREAST	18	0.93		(0.55 -	1.46)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-	
75	CANCER OF THE PROSTATE	18	1.00		(0.60 -	1.59)
76	CANCER OF THE TESTIS	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-	
79	CANCER OF THE BLADDER	NA	>1.00			
245	CANCER OF THE KIDNEY	-	<1.00		-	

TABLE A13B. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 2

MALES AND FEMALES — AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	-	>1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	5	1.01		(0.33 -	2.31)
92	HODGKIN'S DISEASE	-	>1.00		-	
94	NON-HODGKIN'S LYMPHOMA	6	1.07		(0.39 -	2.30)
95	MULTIPLE MYELOMA	-	<1.00		-	
257	LEUKEMIA	5	1.16		(0.37 -	2.66)

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A14A. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 3

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	115	0.93		(0.77 -	1.12)	153	1.09		(0.93 -	1.28)
20	CANCER OF THE LIP	5	4.62	**	(1.49 -	10.60)	-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-		-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	>1.00		-		-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-		-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-		-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-		-	<1.00		-	
28	CANCER OF THE PHARYNX	-	<1.00		-		-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	-	>1.00		-		-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	>1.00		-		-	<1.00		-	
32	CANCER OF THE STOMACH	-	>1.00		-		-	>1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	>1.00		-		-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	12	0.71		(0.37 -	1.23)	32	1.48	*	(1.01 -	2.09)
236	CANCER OF THE LIVER	-	<1.00		-		-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	>1.00		-		-	>1.00		-	
40	CANCER OF THE PANCREAS	5	1.77		(0.57 -	4.06)	-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-		-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-		-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-		-	>1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-		-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-		-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	27	1.21		(0.80 -	1.76)	28	1.86	**	(1.24 -	2.70)
50	CANCER OF THE BONE	-	<1.00		-		-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	>1.00		-		-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	-	<1.00		-		-	>1.00		-	
64	CANCER OF THE BREAST	-	<1.00		-		39	1.09		(0.77 -	1.48)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-		-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-		6	0.81		(0.30 -	1.74)
73	CANCER OF THE OVARY	-	<1.00		-		-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-		-	>1.00		-	
75	CANCER OF THE PROSTATE	26	0.90		(0.59 -	1.32)	-	<1.00		-	
76	CANCER OF THE TESTIS	-	<1.00		-		-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-		-	<1.00		-	
79	CANCER OF THE BLADDER	-	<1.00		-		-	<1.00		-	
245	CANCER OF THE KIDNEY	-	>1.00		-		7	2.33		(0.94 -	4.75)

TABLE A14A. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 3

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
82	CANCER OF THE EYE	-	<1.00		-		-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	-	>1.00		-		-	<1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-		-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-		-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-		7	1.23		(0.50 -	2.52)
92	HODGKIN'S DISEASE	-	>1.00		-		-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-		-	<1.00		-	
95	MULTIPLE MYELOMA	-	>1.00		-		-	<1.00		-	
257	LEUKEMIA	-	<1.00	*	-		-	<1.00		-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A14B. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 3

MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	268	1.02		(0.90 -	1.15)
20	CANCER OF THE LIP	5	3.31	*	(1.07 -	7.60)
414	TONGUE, GUM, AND MOUTH	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	>1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	>1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-	
28	CANCER OF THE PHARYNX	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	-	>1.00		-	
32	CANCER OF THE STOMACH	8	1.15		(0.50 -	2.25)
33	CANCER OF THE SMALL INTESTINE	-	>1.00		-	
259	CANCER OF THE COLON AND RECTUM	44	1.14		(0.83 -	1.53)
236	CANCER OF THE LIVER	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	>1.00		-	
40	CANCER OF THE PANCREAS	NA	>1.00			
41	CANCER OF THE PERITONEUM	-	<1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-	
47	CANCER OF THE PLEURA	-	>1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	55	1.48	**	(1.11 -	1.92)
50	CANCER OF THE BONE	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	>1.00		-	
52	MALIGNANT MELANOMA OF SKIN	6	0.88		(0.32 -	1.89)
64	CANCER OF THE BREAST	39	1.08		(0.77 -	1.48)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	6	0.81		(0.30 -	1.74)
73	CANCER OF THE OVARY	-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	>1.00		-	
75	CANCER OF THE PROSTATE	26	0.90		(0.59 -	1.32)
76	CANCER OF THE TESTIS	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-	
79	CANCER OF THE BLADDER	-	<1.00	**	-	
245	CANCER OF THE KIDNEY	NA	>1.00			

TABLE A14B. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, 1967-76 TOTAL ADULT DOSE, GROUP 3

MALES AND FEMALES — AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	5	1.12		(0.36 -	2.56)
86	CANCER OF THE THYROID	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	>1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	11	1.05		(0.52 -	1.87)
92	HODGKIN'S DISEASE	-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	6	0.60		(0.22 -	1.30)
95	MULTIPLE MYELOMA	-	<1.00		-	
257	LEUKEMIA	-	<1.00	*	-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

TABLE A15A. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, SOUTHERN EA GROUP

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	48	0.90		(0.66 -	1.19)	60	1.06		(0.81 -	1.36)
20	CANCER OF THE LIP	-	>1.00	**	-		-	<1.00		-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-		-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-		-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-		-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-		-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-		-	<1.00		-	
28	CANCER OF THE PHARYNX	-	>1.00		-		-	<1.00		-	
233	OTHER & ILL-DEFINED SITES	-	>1.00		-		-	<1.00		-	
31	CANCER OF THE ESOPHAGUS	-	>1.00		-		-	>1.00		-	
32	CANCER OF THE STOMACH	-	<1.00		-		-	>1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-		-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	-	<1.00	*	-		17	1.87	*	(1.09 -	2.99)
236	CANCER OF THE LIVER	-	<1.00		-		-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	<1.00		-		-	>1.00		-	
40	CANCER OF THE PANCREAS	-	<1.00		-		-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	<1.00		-		-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-		-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-		-	<1.00		-	
47	CANCER OF THE PLEURA	-	<1.00		-		-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-		-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS,LUNG	8	0.83		(0.36 -	1.62)	9	1.45		(0.67 -	2.74)
50	CANCER OF THE BONE	-	<1.00		-		-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-		-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	-	>1.00		-		-	<1.00		-	
64	CANCER OF THE BREAST	-	<1.00		-		14	0.98		(0.54 -	1.64)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-		-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-		-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-		-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-		-	<1.00		-	
75	CANCER OF THE PROSTATE	17	1.32		(0.77 -	2.10)	-	<1.00		-	
76	CANCER OF THE TESTIS	-	<1.00		-		-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-		-	<1.00		-	
79	CANCER OF THE BLADDER	-	<1.00		-		-	<1.00		-	
245	CANCER OF THE KIDNEY	-	>1.00		-		-	>1.00		-	

TABLE A15A. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, SOUTHERN EA GROUP

DISEASE CODE	CAUSE	MALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER	FEMALES AGE GROUP : 00-85+ CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-		-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYST	-	>1.00		-		-	<1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-		-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-		-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-		-	<1.00		-	
92	HODGKIN'S DISEASE	-	>1.00		-		-	<1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-		-	<1.00		-	
95	MULTIPLE MYELOMA	-	>1.00		-		-	<1.00		-	
257	LEUKEMIA	-	<1.00		-		-	<1.00		-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST IS TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5

TABLE A15B. STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, PORT HOPE, SOUTHERN EA GROUP

MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	UPPER
19	ALL CANCER SITES	108	0.98		(0.81 -	1.19)
20	CANCER OF THE LIP	-	>1.00	**	-	
414	TONGUE, GUM, AND MOUTH	-	<1.00		-	
22	CANCER OF THE SALIVARY GLAND	-	<1.00		-	
24	CANCER OF THE OROPHARYNX	-	<1.00		-	
25	CANCER OF THE NASOPHARYNX	-	<1.00		-	
26	CANCER OF THE HYPOPHARYNX	-	<1.00		-	
28	CANCER OF THE PHARYNX	-	>1.00		-	
233	OTHER & ILL-DEFINED SITES	-	>1.00		-	
31	CANCER OF THE ESOPHAGUS	-	>1.00		-	
32	CANCER OF THE STOMACH	-	<1.00		-	
33	CANCER OF THE SMALL INTESTINE	-	<1.00		-	
259	CANCER OF THE COLON AND RECTUM	NA	>1.00			
236	CANCER OF THE LIVER	-	<1.00		-	
38	CANCER OF THE GALLBLADDER	-	>1.00		-	
40	CANCER OF THE PANCREAS	-	<1.00		-	
41	CANCER OF THE PERITONEUM	-	>1.00		-	
44	CANCER OF THE NOSE/SINUSES	-	<1.00		-	
45	CANCER OF THE LARYNX	-	>1.00		-	
47	CANCER OF THE PLEURA	-	<1.00		-	
238	CANCER OF THE THYMUS,HEART & MEDIAST	-	<1.00		-	
104	CANCER OF THE TRACHEA, BRONCHUS&LUNG	17	1.08		(0.63 -	1.72)
50	CANCER OF THE BONE	-	<1.00		-	
239	CANCER OF THE CONNECTIVE TISSUE	-	<1.00		-	
52	MALIGNANT MELANOMA OF SKIN	-	>1.00		-	
64	CANCER OF THE BREAST	14	0.97		(0.53 -	1.62)
65	CANCER OF THE CERVIX UTERI	-	<1.00		-	
70	UTERUS EXCLUDING CERVIX	-	<1.00		-	
73	CANCER OF THE OVARY	-	<1.00		-	
243	CANCER OF OTHER FEMALE GENITAL ORGAN	-	<1.00		-	
75	CANCER OF THE PROSTATE	17	1.30		(0.76 -	2.08)
76	CANCER OF THE TESTIS	-	<1.00		-	
244	CANCER OF OTHER MALE GENITAL ORGANS	-	<1.00		-	
79	CANCER OF THE BLADDER	-	<1.00		-	
245	CANCER OF THE KIDNEY	8	2.87	*	(1.24 -	5.61)

TABLE A15B. (CONT'D) STANDARDIZED INCIDENCE RATIOS, 1986 TO 1996, STANDARD POPULATION CANADA 1991 - AREA: PORT HOPE, PORT HOPE, SOUTHERN EA GROUP

MALES AND FEMALES AGE GROUP : 00-85+

DISEASE CODE	CAUSE	CASES	S.I.R.	FLAG	95% CI LOWER	95% CI UPPER
82	CANCER OF THE EYE	-	<1.00		-	
84	CANCER OF BRAIN & OTHER NERVOUS SYSTEM	-	>1.00		-	
86	CANCER OF THE THYROID	-	<1.00		-	
247	CANCER OF OTHER ENDOCRINE GLANDS	-	<1.00		-	
88	CANCER OF ILL-DEFINED & UNKNOWN SITE	-	<1.00		-	
92	HODGKIN'S DISEASE	-	>1.00		-	
94	NON-HODGKIN'S LYMPHOMA	-	<1.00		-	
95	MULTIPLE MYELOMA	-	<1.00		-	
257	LEUKEMIA	-	<1.00		-	

FLAG : 1 ** : S.I.R. IS SIGNIFICANT P-VALUE < 0.01
2 * : S.I.R. IS SIGNIFICANT P-VALUE < 0.05
3 BLANK MEANS NOT SIGNIFICANT P-VALUE > 0.05
4 " POISSON RATIO TEST TOO SENSITIVE FOR THIS NO. OF OBS.

- FOR THE NUMBER OF CASES INDICATES < 5
NA INDICATES A TOTAL SUPPRESSED BECAUSE A COMPONENT IS LESS THAN 5

Appendix B. Cancer Site Definitions

ICD-9 Code, Abbreviated Title, and Full Descriptive Title for Individual Cancer Sites

ICD-9 Code	Abbreviated Title	Full Descriptive Title
140-208 except 173	All Sites	All Malignant Neoplasms Excluding Other Skin Cancers
140	Lip	Malignant Neoplasm of Lip
141,143-145	Tongue and Mouth	Malignant Neoplasm of Tongue, Gum and Mouth
142	Salivary Gland	Malignant Neoplasm of Major Salivary Glands
146	Oropharynx	Malignant Neoplasm of Oropharynx
147	Nasopharynx	Malignant Neoplasm of Nasopharynx
148	Hypopharynx	Malignant Neoplasm of Hypopharynx
146-148	Pharynx	Malignant Neoplasm of Oropharynx, Nasopharynx and Hypopharynx
149	Other & Ill-defined Sites	Malignant Neoplasm of Other & Ill-defined Sites within the Lip, Oral Cavity and Pharynx
150	Esophagus	Malignant Neoplasm of Esophagus
151	Stomach	Malignant Neoplasm of Stomach
152	Small Intestine	Malignant Neoplasm of Small Intestine, including Duodenum
153-154	Colon and Rectum	Malignant Neoplasm of Colon, Rectum, Rectosigmoid Junction and Anus
155	Liver	Malignant Neoplasm of Liver and Intrahepatic Bile Ducts
156	Gallbladder	Malignant Neoplasm of Gallbladder and Extrahepatic Bile Ducts
157	Pancreas	Malignant Neoplasm of Pancreas
158	Peritoneum	Malignant Neoplasm of Retroperitoneum and Peritoneum
160	Nose, Sinuses	Malignant Neoplasm of Nasal Cavities, Middle Ear and Accessory Sinuses
161	Larynx	Malignant Neoplasm of Larynx
162	Lung	Malignant Neoplasm of Trachea, Bronchus and Lung
163	Pleura	Malignant Neoplasm of Pleura
164	Other Thoracic Organs	Malignant Neoplasm of Thymus, Heart and Mediastinum

170	Bone	Malignant Neoplasm of Bone and Articular Cartilage
171	Connective Tissue	Malignant Neoplasm of Connective and Other Soft Tissue
172	Melanoma of Skin	Malignant Neoplasm of Skin
173	Other Skin	Other Malignant Neoplasm of Skin
174	Female Breast	Malignant Neoplasm of Female Breast
175	Male Breast	Malignant Neoplasm of Male Breast
180	Cervix Uteri	Malignant Neoplasm of Cervix Uteri
179,181-182	Uterus excluding Cervix	Malignant Neoplasm of Uterus (Part Unspecified), Body of Uterus and Placenta
183	Ovary	Malignant Neoplasm of Ovary and Other Uterine Adnexa
184	Other Female Genital	Malignant Neoplasm of Other and Unspecified Female Genital Organs
185	Prostate	Malignant Neoplasm of Prostate
186	Testis	Malignant Neoplasm of Testis
187	Other Male Genital	Malignant Neoplasm of Penis and Other Male Genital Organs
188	Bladder	Malignant Neoplasm of Bladder
189	Kidney	Malignant Neoplasm of Kidney and Other and Unspecified Urinary Organs
190	Eye	Malignant Neoplasm of Eye
191-192	Nervous System	Malignant Neoplasm of Brain and Other and Unspecified Parts of Nervous System
193	Thyroid	Malignant Neoplasm of Thyroid Gland
194	Other Endocrine	Malignant Neoplasm of Other Endocrine Glands and Related Structures
195-199	Ill-Defined and Unknown	Malignant Neoplasm of Other and Ill-Defined, Secondary, and Unspecified Sites
201	Hodgkin's Disease	Hodgkin's Disease
200,202	Non-Hodgkin's Lymphoma	Lymphosarcoma, Reticulosarcoma, and Other Malignant Neoplasm of Lymphoid and Histiocytic Tissue
203	Multiple Myeloma	Multiple Myeloma and Immunoproliferative Neoplasm
204-208	Leukemia	Lymphoid, Myeloid, Monocytic, and Other Specified Leukemia and Leukemia of Unspecified Cell Type

World Health Organization, Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Vol. 1 (Tabular List) and Vol. II (Index), 1975 Revision. WHO, Geneva, 1977.

Appendix C. Sample size

In considering actions for follow up, a possible option is a case-control study. To illustrate the difficulties in conducting case-control studies, this section illustrates issues involved in assessing the sample size requirements using two scenarios. Over the period 1986-1996 there were approximately 100 lung cancer cases with Port Hope residence. However, in the previous study conducted in Port Hope only about one-half of the total cases could be included. The main reasons for exclusion were having less than 7 years residence in Port Hope, not being able to locate the next of kin, and working in the Eldorado plant (now Cameco). It is expected about 50% additional cases are required to allow for control of smoking status since it is a strong confounder and was not independent of the exposure based on the previous study (Breslow 1987b).

In scenario 1, exposure is based on any exposure above the background level of about 50 Bq/m^3 and includes all exposures before remedial work with the proportion exposed in the controls set at 0.50 based on the Lees (1987) study. The expected relative risk (RR) based on BEIR VI estimates would be less than 1.5. Two controls per case are sampled. With n = 100 (the maximum sample size which would need both retrospective and prospective data collection, a test level alpha = 0.10 (or 0.05 one sided), and power of achieving a significant result = 0.80 the minimum detectable RR equals 1.9 and if the effective n is reduced to n = 67 the RR increases to 2.1. With n = 50 (the sample size practical to collect in a reasonable time frame, alpha = 0.10 (or 0.05 one-sided), and power = 0.80 the minimum detectable RR equals 2.5. If the effective n is reduced to 33, the RR increases to 3.0. The previous case-control study reported a RR of 2.4 with a wide confidence interval.

In scenario 2, exposure is based on having lived in a problem residence of above 150 Bq/m^3 and the proportion exposed in the controls is 0.10 or lower, based on the earlier study. The expected RR would be less than 2.0. With n = 100 and alpha and power as specified above the minimum detectable RR is 2.4 and if the effective n is reduced to n = 67 RR increases to 2.8. With n = 50 the minimum detectable RR equals 3.2. If the effective n is reduced to 33, RR increases to 4.0. The previous case-control study reported a RR of 6.8 with a wide confidence interval.

In summary, the statistical calculation reveals that without an extended case ascertainment period, there would be inadequate sample size to detect a significant RR of historical exposure levels. Similar results would be obtained for other study designs using cancer cases.